

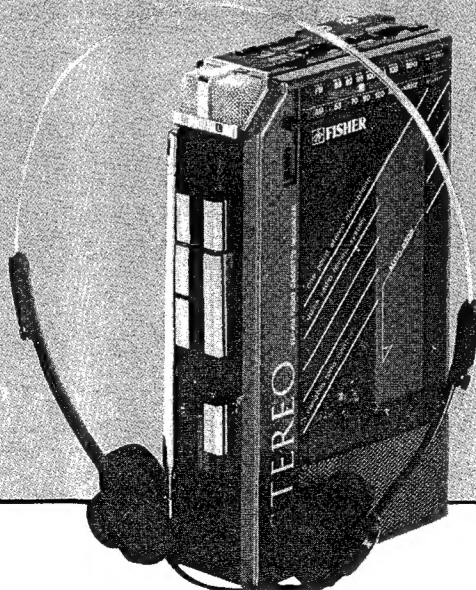
SERVICE MANUAL



FISHER

PH 70

Mini Stereo Radio Cassette Recorder
(EUROPE)



THE FIRST NAME IN HIGH FIDELITY

SPECIFICATIONS

| | |
|------------------------------------|---------------------|
| Power Source | |
| DC | 6V |
| (HP 7, Mignonzelle, R 6) x 4 | |
| Output Power | |
| Headphone | 50mW x 2 (Max.) |
| Speaker | 700mW (Max.) |
| Current Consumption (at Vol. Min.) | |
| Record mode | 220mA |
| Playback mode | 180mA |
| Fast Forward mode | 230mA |
| Rewind mode | 260mA |
| Recording System | AC Bias |
| Erasing System | Magnet Erasing |
| Tape Speed (Normal) | 1-7/8ips. $\pm 3\%$ |
| Fast | +20% |
| Slow | -10% |
| Fast Forward Time | 150sec. (with C-60) |
| Rewind Time | 150sec. (with C-60) |
| Torque | |
| Playback | 35 ~ 55g-cm |
| Fast Forward | more than 55g-cm |
| Rewind | more than 55g-cm |
| Wow & Flutter | 0.5%, RMS |

| | |
|--|-----------------------------|
| Frequency Response (Overall) | |
| Fe ₂ O ₃ | |
| Headphone | 40 ~ 10,000Hz |
| Speaker | 200 ~ 6,000Hz |
| Metal | |
| Headphone | 40 ~ 12,000Hz |
| Speaker | 200 ~ 6,000Hz |
| Erase Ratio (Overall, with Fe ₂ O ₃) | more than 50dB |
| Signal to Noise Ratio (with Fe ₂ O ₃) | more than 40dB |
| Crosstalk (with Fe ₂ O ₃) | |
| Track to Track | more than 55dB |
| Channel Separation (with Fe ₂ O ₃) | more than 23dB |
| Harmonic Distortion (K3, with Fe ₂ O ₃) .. | less than 6% |
| Hum & Noise | |
| (at Vol. Min. with AC Adaptor) | -65dBs |
| Terminal Impedance | |
| MIC. | 3.9k Ω |
| Ext. Speaker | 47 Ω |
| Dimensions (W x H x D) | 93(W) x 158(H) x 42.5(D) mm |
| Weight | 480g |
| Frequency Range | |
| AM | 525 ~ 1,605kHz |
| FM | 88 ~ 108MHz |

—Specifications subject to change without notice.—

DISASSEMBLY INSTRUCTIONS

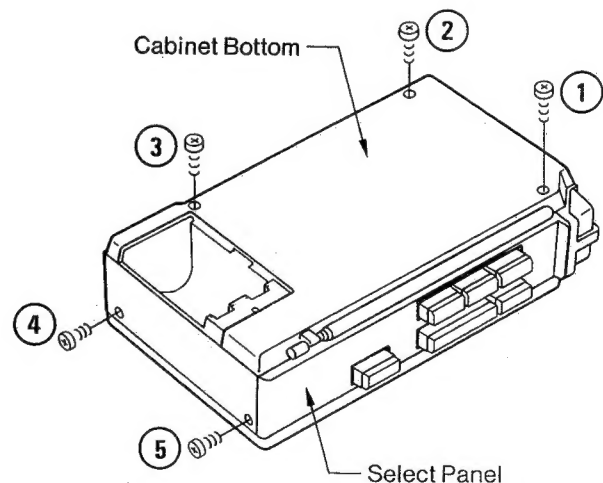
GENERAL REMARKS

- Before disassembling the unit, spread a soft rubber mat or a cloth on the work bench to avoid scratches and grease stains.
- Do not use a material which is likely to cause static electricity because transistors and ICs may be easily damaged by it.
- Reassemble the unit, noting the kinds of screws, the soldering and arrangement of the leads. Refer to "Circuit Diagrams and Exploded Views" for correct assembly.
- Before disassembling the unit, take out the cassette tape and the batteries.

CABINET BOTTOM REMOVAL

1. Remove the five screws (1 ~ 5) fastening the Cabinet Bottom and detach the Cabinet Bottom by lifting it.
2. The Select Panel can be removed from the unit by detaching the Cabinet Bottom.

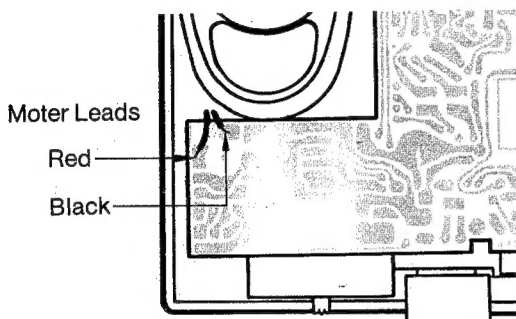
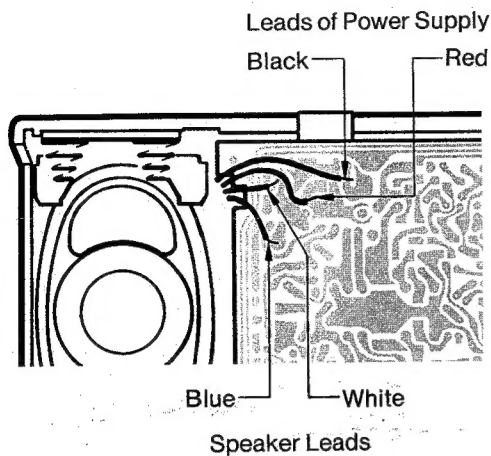
3. Reassemble in reverse order.



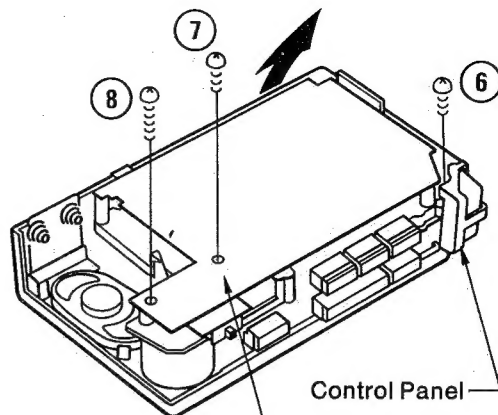
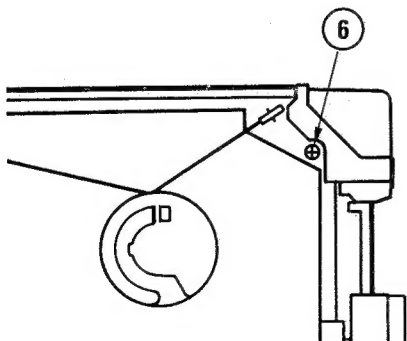
DISASSEMBLY INSTRUCTIONS (Continued)

P.C.BOARD ASSEMBLY REMOVAL

1. Remove the Cabinet Bottom and Select Panel by following the instructions and unsolder the speaker leads (blue and white), the leads of the power supply (black and red) and the motor leads (black and red) from the P.C.Board.



2. Remove the three screws (6 ~ 8) fastening the P.C.Board and detach the P.C.Board by lifting it in the direction of the arrow.



Amplifier/Radio Tuner P.C.Board

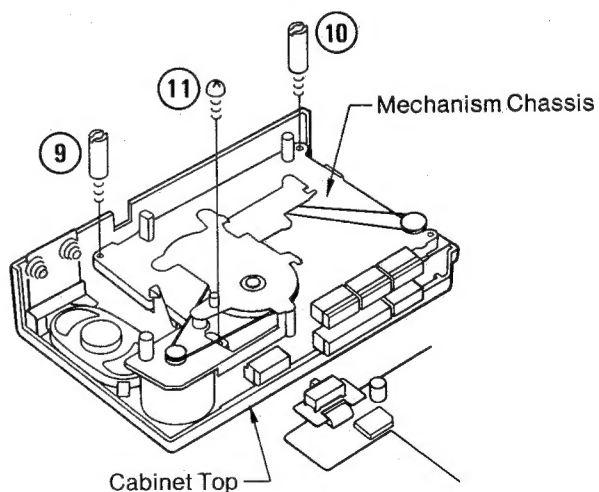
3. Reassemble in reverse order.

NOTE:

When the P.C.Board is mounted on the Mechanism Chassis, set the Switches on the P.C.Board to the Mechanism correctly.

MECHANISM CHASSIS REMOVAL

1. Remove the P.C.Board Assembly by following the instructions.
2. Remove the two posts (9 and 10) and the fastening screw (11) from the Chassis and then, detach the Mechanism Chassis by lifting it from the Cabinet Top.



ADJUSTMENTS

GENERAL REMARKS

- Before adjustment, wipe the tape contacting surfaces clean as well as the contacting surfaces of the driving parts with a soft cloth soaked in alcohol.
Trouble may occur because of oil and grease stains.
- Carefully handle the belt because grease easily attaches to it. Then, check the used rubber parts. If the rubber has deteriorated or is scratched, replace the parts with new ones.

EQUIPMENT REQUIRED

- Cassette-type Torquemeter
- VTVM (2 sets)
- Frequency Counter
- Dualtrace Synchroscope
- DC Constant-voltage Regulator
- Dummy Load (33 Ω)
- Test Tapes
 - 3kHz Test Tape (Example: TEAC MTT-111) for Tape Speed Adjustment
 - 10kHz Test Tape (Example: TEAC MTT-114) for Head Azimuth Adjustment
- Alignment Tool

Before the Electrical Adjustments, set the Switches as follows:

- Tape Select Switch NORMAL
- Function Switch TAPE
- Pitch Control Switch "N"

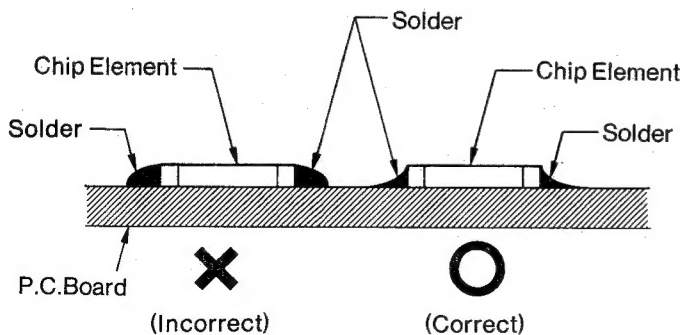
NOTE:

Supply 6.0V DC to the External Power Jack from the constant-voltage regulator at the adjustment.

NOTES ON HANDLING THE CHIP ELEMENT

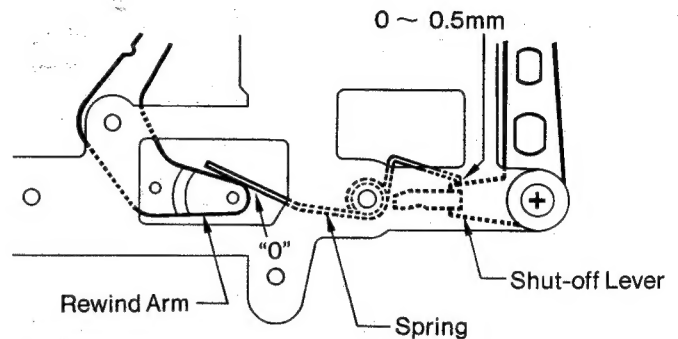
Pay due caution to the following items:

- Do not use the removed chip element again.
- Use a soldering iron of less than 30W.
 - The soldering iron should not touch the body of the chip element.
 - Complete soldering in a short time.
 - Apply solder to the chip element as illustrated below.



AUTO SHUT-OFF MECHANISM ADJUSTMENT

- When the unit is set in the playback mode, the Shut-off Lever reciprocates according to the rotations of the Take-up Idler and Take-up Reel.
- Set the unit in the playback mode with the power supply off and slowly turn the Flywheel clockwise until the Shut-off Lever comes closest to the Spring.
- Check that the Spring touches the Rewind Arm, and that the clearance of 0 ~ 0.5mm remains between the Shut-off Lever and Spring as illustrated.



- If the specified clearance is not obtained, adjust the clearance by bending the Spring.

NOTE:

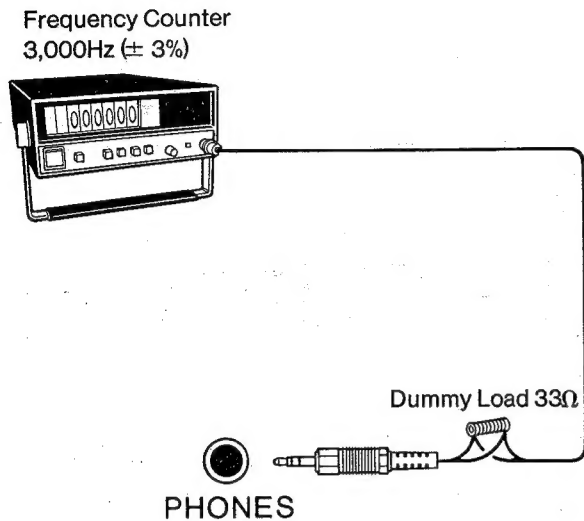
If the clearance is not adjusted correctly, the following symptoms can occur:

- When the clearance is more than 0.6mm;**
 - When the Rewind button is released to return the unit from the review mode to the playback mode, the unit may shut off automatically.
- When the Shut-off Lever pushes the Spring while reciprocating;**
 - When the tape has reached its end with the unit in the playback mode, the unit may not shut off automatically.

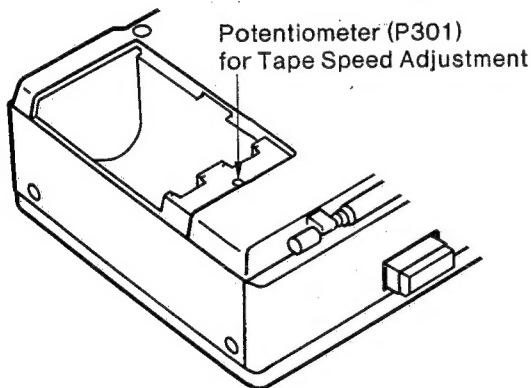
ADJUSTMENTS (Continued)

TAPE SPEED ADJUSTMENT

1. Remove the Battery Compartment Lid from the unit and insert a 3kHz test tape (Example: TEAC MTT-111) into the unit.
2. Connect the frequency counter to the headphone jack as illustrated and play back the test tape.



3. While playing back the test tape, adjust the tape speed by turning the potentiometer (P301) on the Amplifier P.C.Board until the frequency counter reads 3kHz (± 3%).

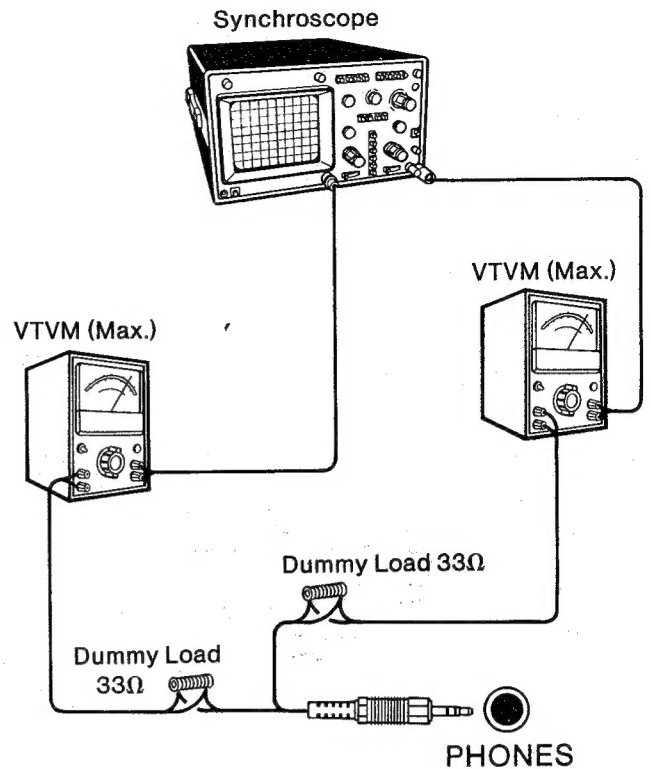


HEAD AZIMUTH ADJUSTMENT

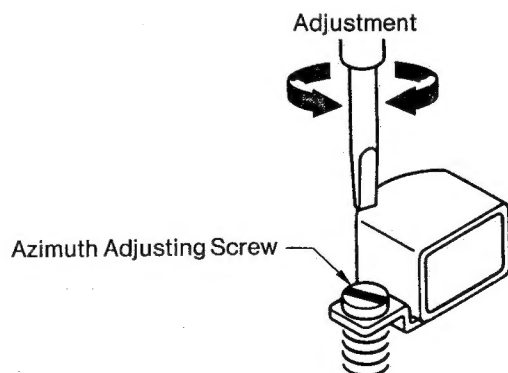
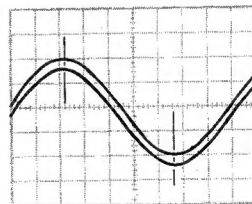
1. Connect two VTVMs and a synchroscope to the headphone jack as illustrated.

Set the synchroscope as follows:

- * MODE CHOP (chopped)
- * SOURCE INT (internal), CH1 or CH2
- * SWEEP MODE AUTO (automatic)



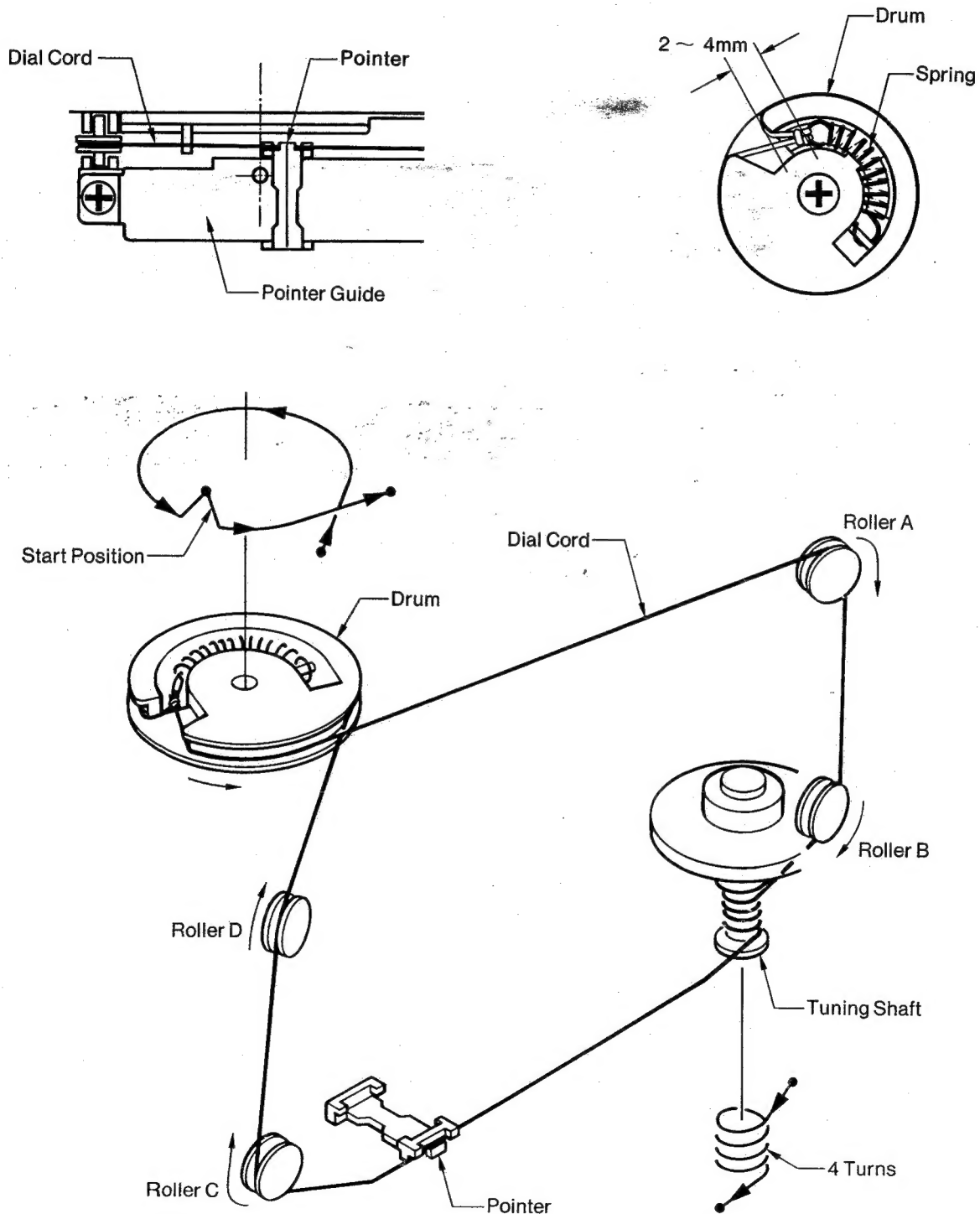
2. Insert a 10kHz test tape (Example: TEAC MTT-114) into the unit and play it back.
3. While playing back the test tape, slowly turn the azimuth adjusting screw until the amplitudes of both channel output wave forms become maximum and the wave forms overlap as well as possible in the maximum condition of the VTVM as illustrated.



4. After the adjustment, secure the adjusting screw with paint or glue.

DIAL CORD STRINGING

1. Tie the dial cord of length 700mm and diameter $\phi 0.3$ to the spring and hook the spring to the illustrated position of the drum.
2. Engage the dial cord as illustrated in the following order
Drum \rightarrow Roller A \rightarrow Roller B \rightarrow Tuning Shaft (4 turns) \rightarrow Roller C \rightarrow Roller D \rightarrow Drum \rightarrow Spring
3. Hook the dial cord to the spring and tie the cord where the end of the spring is positioned 2 ~ 4mm from the illustrated position of the drum.
4. Observing the Tuning Knob from the P.C.Board side, turn it clockwise until it stops.
Then, match the pointer to the mark on the Pointer Guide and attach it to the dial cord as illustrated.
5. Secure the dial cord knot and the pointer with paint or glue in the position.



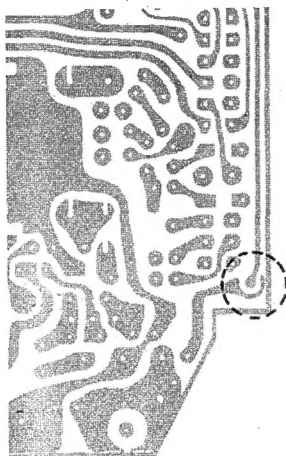
TUNER ADJUSTMENT

EQUIPMENT REQUIRED

- AM Standard Signal Generator
- FM Standard Signal Generator
- Generator Scope
- Loop Antenna
- Dummy Antenna (75Ω, unbalanced type) for FM
- Ceramic Capacitor (10pF) for FM IF Alignment
- VTVM
- Frequency Counter
- Oscilloscope
- Dummy Load (33Ω)
- Alignment Tool
- Before performing the adjustment, set the switches as follows:
 - * Function Switch RADIO/PLAY
 - * Band Select Switch AM or FM

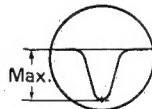
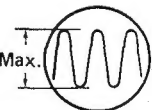
NOTE:

- * Use an alignment tool with plastic grip for all adjustments.
- * When performing the FM Alignment, open the headphone antenna circuit as illustrated.



AM ALIGNMENT

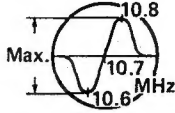

Standard Test Frequency 400Hz and Modulation 30% at AM

| Step | Alignment | Connections | | Frequency of Signal Generator | Tuning Dial Setting | Adjustments | Remarks |
|------|------------------------------|--|---|-------------------------------|---------------------|--------------------|---|
| | | INPUT | OUTPUT | | | | |
| 1 | Calibration of IF for AM | Connect loop antenna to output terminal of gene-scope. Place loop antenna 60cm away from bar antenna. | Connect input terminal of gene-scope to Pin 2 (TP4) in IC3. | 460kHz | Low End | T2 | Obtain symmetrical curve and maximum amplitude.  |
| 2 | Calibration of Tuning Range | Connect loop antenna to output terminal of AM signal generator. Place loop antenna 60cm away from bar antenna. | Connect VTVM with 33Ω dummy load and oscilloscope to Headphones jack. | 510kHz | | T4 | Obtain sine-wave of 400Hz and maximum amplitude.  |
| 3 | | | | 1,670kHz | High End | TC4 (PVC) | |
| 4 | Adjustment of Tracking | | | 600kHz | 600kHz | L5 (bar ant. coil) | |
| 5 | | 1,400kHz | 1,400kHz | TC3 (PVC) | | | |
| 6 | Repeat the above adjustment. | | | | | | |

TUNER ADJUSTMENT (Continued)

FM ALIGNMENT

Standard test frequency 400Hz and deviation 22.5kHz

| Step | Alignment | Connections | | Frequency of Signal Generator | Tuning Dial Setting | Adjustments | Remarks |
|------|------------------------------|---|---|-------------------------------|---------------------|-------------|---|
| | | INPUT | OUTPUT | | | | |
| 1 | Calibration of IF | Connect output terminal of gene-scope to Pin 4 (TP3) of IC1 through ceramic capacitor (10pF). | Connect input terminal of gene-scope to Pin 2 (TP4) of IC3. | 10.7MHz | Low End | T1 and T3 | Obtain S curve and maximum amplitude.  |
| 2 | Calibration of Tuning Range | Connect FM signal generator to antenna terminal (TP1) through dummy antenna (75Ω, unbalanced type). | Connect VTVM with 33Ω dummy load and oscilloscope to Headphones jack. | 87.35MHz | | L2 | Obtain sine-curve and maximum amplitude.  |
| 3 | | | | 108.2MHz | High End | TC2 (PVC) | |
| 4 | Adjustment of Tracking | | | 90MHz | 90MHz | L1 | |
| 5 | | | | 106MHz | 106MHz | TC1 (PVC) | |
| 6 | Repeat the above adjustment. | | | | | | |

FM MPX (Multiplex) ADJUSTMENT

19kHz (V.C.O.) ADJUSTMENT

Before performing the adjustment, set the unit as follows:

- Function Switch RADIO/PLAY
- Band Select Switch FM ST

1. Connect the frequency counter to the Pin 12 (test point TP8) in IC3 (LA3361).
2. Adjust the potentiometer (P1) until the frequency counter reads 19kHz (± 20 Hz).

PARTS LIST

| Ref. No. | Part No. | Description | Q'ty |
|----------------|------------------|-------------------|------|
| PACKAGE | | | |
| | 141 6 1419 67302 | Individual Carton | 1 |
| | 141 6 1449 85400 | Case Styrofoam | 1 |
| | 141 6 3919 43100 | Pad | 1 |
| | 141 6 2519 12090 | Poly Cover | 2 |
| | 141 6 4559 03300 | Serial No. Sheet | 3 |

ACCESSORIES

| | | | |
|--|------------------|--------------------|---|
| | 4 1529 70262 | Headphones | 1 |
| | 4 2419 74052 | Cassette | 1 |
| | 141 6 4519 19400 | Warranty Card | 1 |
| | 141 2 1769 07300 | Shoulder Strap | 1 |
| | 141 2 1769 07401 | Hand Strap | 1 |
| | 141 2 1819 14002 | Carrying Case | 1 |
| | 142 6 4119 31664 | Instruction Manual | 1 |

HEADPHONES

| | | | |
|----|------------------|----------------|---|
| | 4 1529 70262 | Headphones | 1 |
| 1 | 4 2369 73560 | Plug Cord | 1 |
| 2 | 141 2 3529 36700 | Tube | 2 |
| 3 | 141 2 4469 41100 | Ear Pad | 2 |
| 4 | 4 1519 71230 | Ear Speaker | 2 |
| 5 | 141 2 1259 04500 | Housing | 2 |
| 6 | 141 2 1769 06304 | Hanger, Left | 1 |
| 7 | 141 2 1769 06305 | Hanger, Right | 1 |
| 8 | 141 2 8219 32400 | Stopper | 2 |
| 9 | 141 2 3529 36800 | Slide Adjustor | 2 |
| 10 | 141 2 1769 06400 | Slider | 1 |

CABINET

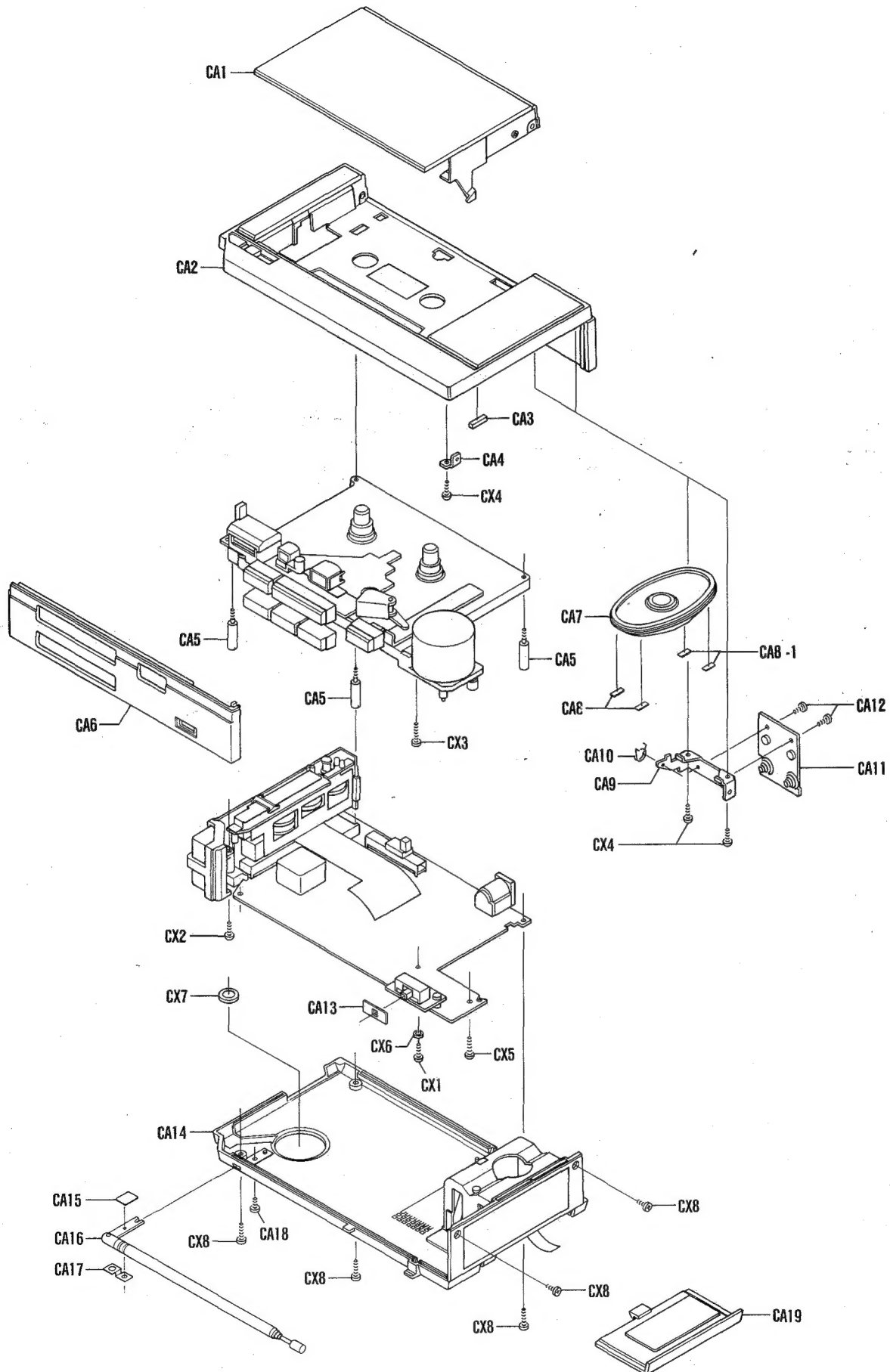
| | | | |
|-------|------------------|--------------------------|----------------|
| CA1 | 141 0 1249 22804 | Cassette Lid Assy | 1 |
| CA2 | 141 0 1119 87804 | Cabinet Top Assy | 1 |
| CA3 | 141 2 4469 36500 | Cushion | 1 |
| CA4 | 141 2 2149 17900 | Bracket | 1 |
| CA5 | 141 2 7539 23700 | Spacer | 3 |
| CA6 | 141 2 1149 28700 | Panel, Select | 1 |
| CA7 | 4 1519 71360 | Speaker (8Ω) [SP1] | 1 |
| CA8 | 141 2 4419 17100 | Cushion | 2 |
| CA8-1 | 141 2 4419 17101 | Cushion | 2 |
| CA9 | 141 2 2149 18000 | Bracket, Speaker | 1 |
| CA10 | 141 2 8519 64500 | Spring, Cassette Lid | 1 |
| CA11 | 141 0 3829 08800 | Terminal Battery Assy | 1 |
| CA12 | 141 2 4219 09003 | Screw | +M2.0x2.0 2 |
| CA13 | 141 2 2419 27500 | Sheet, Knob | 1 |
| CA14 | 141 0 1119 87904 | Cabinet Bottom Assy | 1 |
| CA15 | 141 2 4359 21500 | Insulator | 1 |
| CA16 | 4 2449 70320 | Rod Antenna | 1 |
| CA17 | 141 2 3829 34400 | Antenna Terminal | 1 |
| CA18 | 141 2 4219 03002 | Screw | +M2.0x3.0 1 |
| CA19 | 141 0 1339 11201 | Battery Lid Assy | 1 |
| CX1 | 101 3 1302 00411 | Screw, Pan Hd. | +M2.0x4 1 |
| CX2 | 101 3 1302 00611 | Screw, Pan Hd. | +M2.0x6 1 |
| CX3 | 101 3 1302 01011 | Screw, Pan Hd. | +M2.0x10 1 |
| CX4 | 103 3 1302 00611 | Screw, Pan Hd. Tapping-2 | +M2.0x6 3 |
| CX5 | 103 3 1302 01211 | Screw, Pan Hd. Tapping-2 | +M2.0x12 1 |
| CX6 | 110 3 2102 00081 | Spring Washer-2 | M2.0 1 |
| CX7 | 110 3 9500 80054 | Nylon Washer | M5.0x8.0x0.5 1 |
| CX8 | 128 3 1320 05018 | PI Screw-3, Pan Hd. | +M2.0x5.0 5 |

| Ref. No. | Part No. | Description | Q'ty |
|----------------------|------------------|---------------------------------------|-------------|
| RADIO CHASSIS | | | |
| DC1 | 141 2 1149 28801 | Control Panel | 1 |
| DC2 | 141 2 4469 42600 | Cushion | 2 |
| DC3 | 4 1539 70780 | Microphone Assy [BM1] | 1 |
| DC4 | 141 2 2449 44400 | Net, Mike | 1 |
| DC5 | 141 2 1559 07200 | Grill, Mike | 1 |
| DC6 | 141 2 1649 17602 | Switch Button | 2 |
| DC7 | 141 2 8259 10600 | Roller | 4 |
| DC8 | 141 2 7519 60100 | Roller Shaft | 1 |
| DC9 | 141 2 4219 26800 | Screw | 1 |
| DC10 | 141 2 1639 50801 | Knob, Volume | 1 |
| DC11 | 141 2 1639 50701 | Knob, Volume | 1 |
| DC12 | 4 2229 73404 | Volume Control P.C.B. Assy [See PCB2] | 1 |
| DC13 | 141 2 1649 19701 | Knob, Switch | 1 |
| DC14 | 141 2 8219 32700 | Pointer Guide | 1 |
| DC15 | 141 2 5119 06500 | Pointer | 1 |
| DC16 | 4 2029 70533 | LED Indicator P.C.B. Assy [See PCB3] | 1 |
| DC17 | 4 2439 71760 | Flexible Printed Circuit | 1 |
| DC18 | 141 2 1639 50601 | Knob, Tone | 1 |
| DC19 | 141 2 2719 18400 | Pin, Strap | 1 |
| DC20 | 141 2 7519 60900 | Roller Shaft | 3 |
| DC21 | 141 2 7519 60200 | Dial Shaft | 1 |
| DC22 | 141 2 1639 50901 | Knob, Tuning | 1 |
| DC23 | 4 2579 71052 | Bar Antenna [L5] | 1 |
| DC24 | 141 2 4469 40100 | Cushion | 1 |
| DC25 | 4 1329 78219 | AMP/Tuner P.C.B. Assy [See PCB1] | 1 |
| DC26 | 141 2 3769 13900 | Sheet, Switch | 2 |
| DC27 | 141 2 1539 14600 | Spacer, Jack | 1 |
| DC27-1 | 141 2 1539 14601 | Spacer, Jack | 1 |
| DC28 | 141 2 8429 06400 | R/P Switch Lever | 1 |
| DC29 | 141 2 4419 14901 | Sheet | 1 |
| DC30 | 4 2319 75651 | Switch P.C.B. Assy [See PCB4] | 1 |
| DC31 | 141 2 7539 23800 | Spacer | 2 |
| DC32 | 141 2 5389 03600 | Drum | 1 |
| DC33 | 141 2 8549 14200 | Spring | 1 |
| DY1 | 101 3 1302 00811 | Screw, Pan Hd. | +M2.0x8 2 |
| DY2 | 103 3 1302 00611 | Screw, Pan Hd. Tapping-2 | +M2.0x6 4 |
| DY3 | 106 3 1302 00123 | Hex. Nut-3 | M2.0 2 |
| DY4 | 127 3 1317 02514 | PI Screw-1, Pan Hd. | +M1.7x2.5 1 |
| DY5 | 128 3 1317 03018 | PI Screw-3, Pan Hd. | +M1.7x3.0 1 |
| DY6 | 629 3 0907 00000 | String, φ0.3 | 1 |

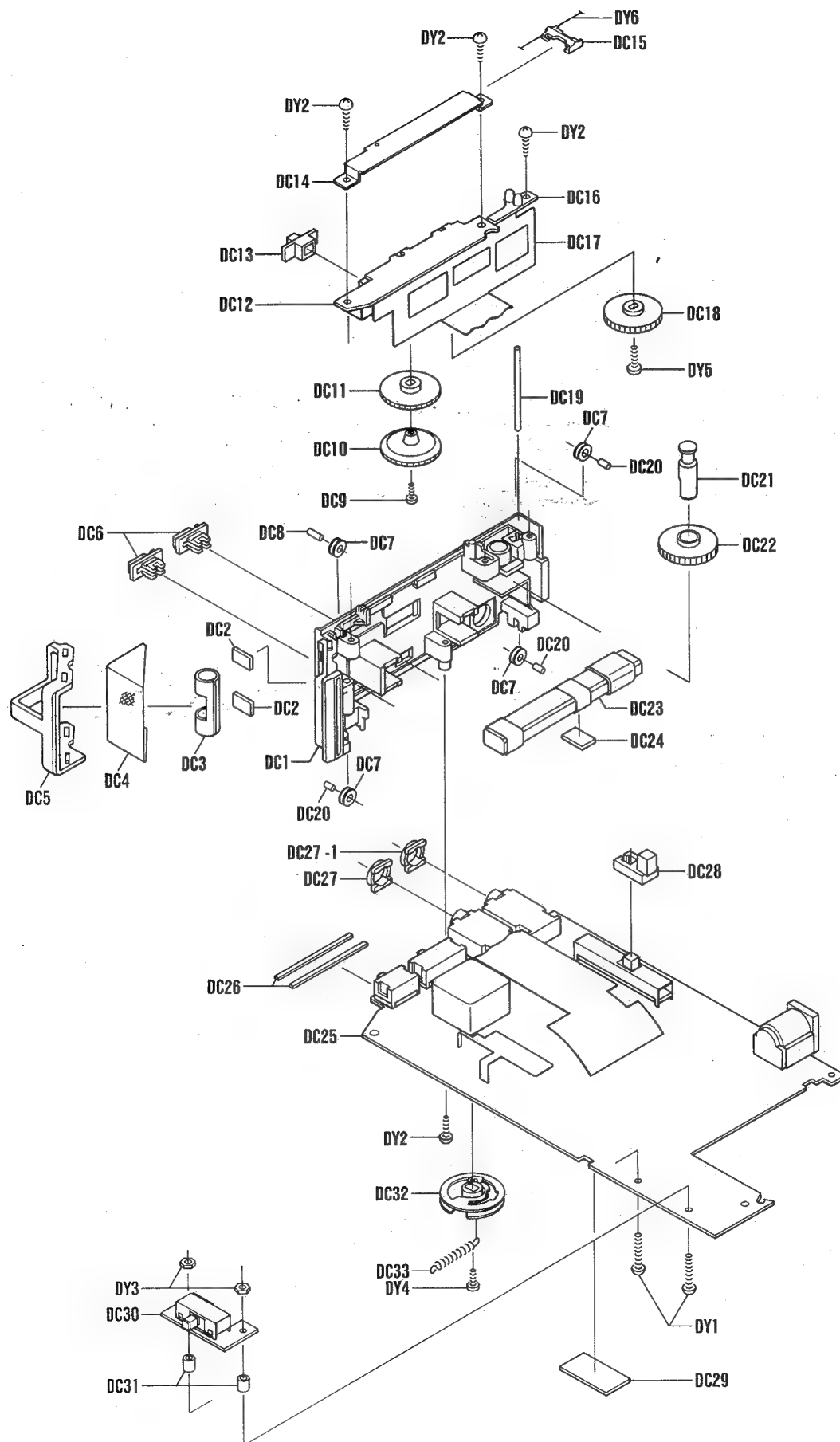
NOTES:

- Parts order must contain Model Number, Part Number and Description.
- Ordering quantity of screws and resistors must be multiple of 10 pcs.

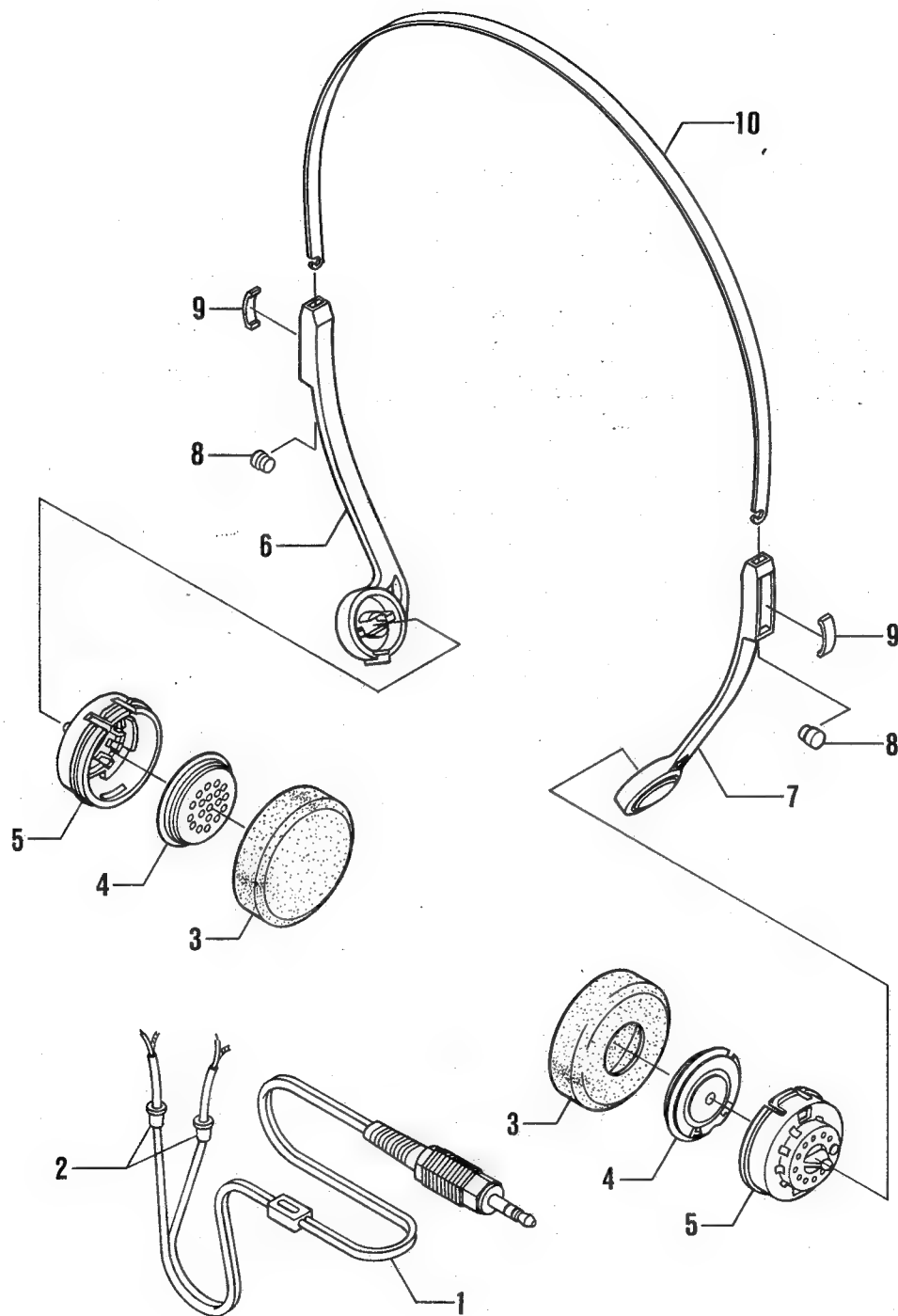
CABINET EXPLODED VIEW



RADIO CHASSIS EXPLODED VIEW



HEADPHONE EXPLODED VIEW



MECHANISM PARTS LIST

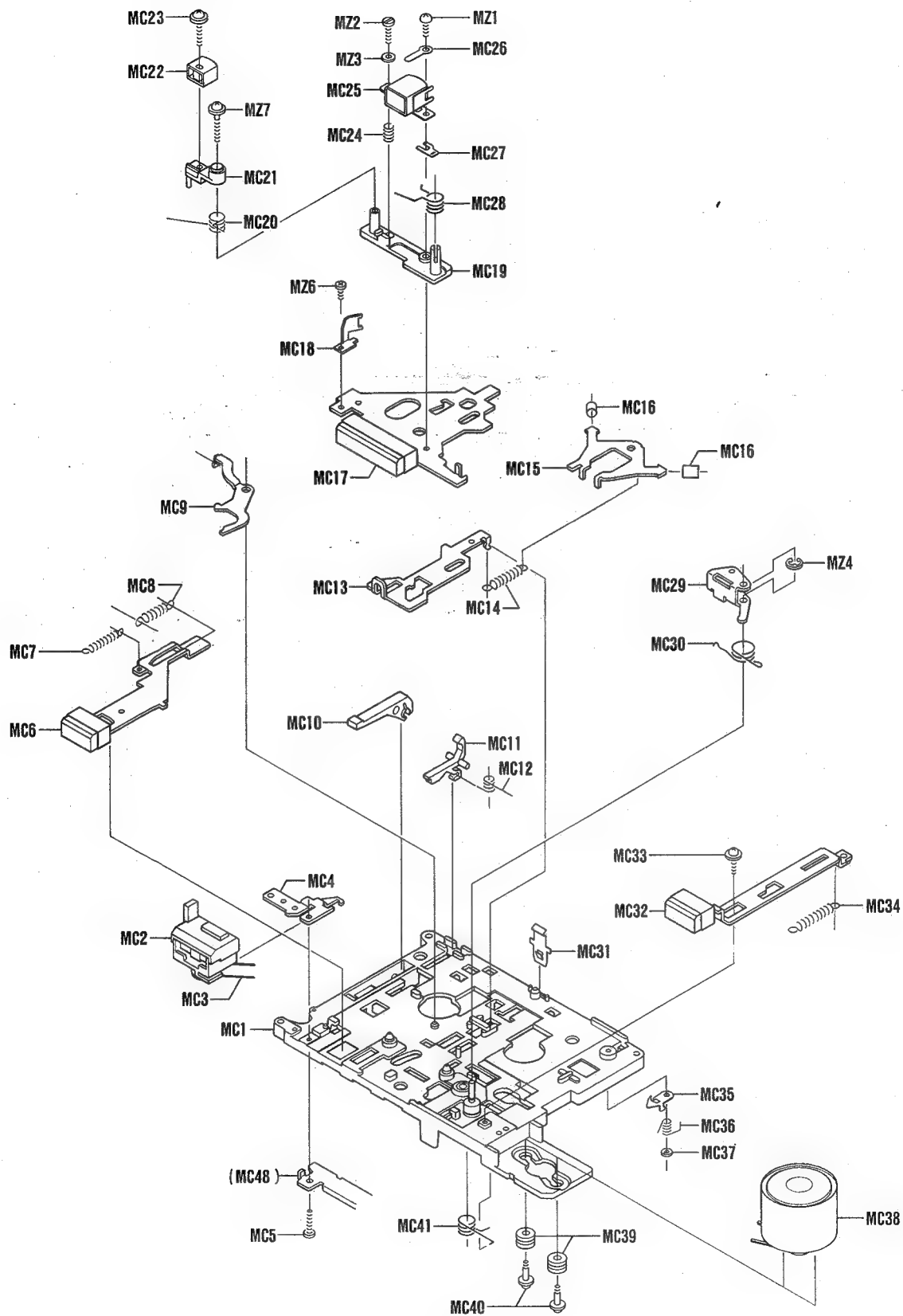
| Ref. No. | Part No. | Description | Q'ty |
|------------------|------------------|--------------------------|------|
| MECHANISM | | | |
| MC1 | 141 0 3119 21300 | Chassis Assy | 1 |
| MC2 | 141 2 8119 10800 | Counter | 1 |
| MC3 | 141 2 5649 20200 | Counter Belt | 1 |
| MC4 | 141 2 8139 08800 | Counter Bracket | 1 |
| MC5 | 141 2 4219 28100 | Screw, Pan Hd. | 1 |
| MC6 | 141 0 7419 36002 | Record Rod Assy | 1 |
| MC7 | 141 2 8519 94300 | Spring, Lock Plate | 1 |
| MC8 | 141 2 8519 44100 | Spring, Interlock | 1 |
| MC9 | 141 2 8419 11900 | Record Lock Lever | 1 |
| MC10 | 141 2 7419 81800 | Eject Lever | 1 |
| MC11 | 141 2 8419 11800 | Interlock Lever | 1 |
| MC12 | 141 2 8529 10800 | Spring, Interloc | 1 |
| MC13 | 141 2 7419 82500 | Play Rod | 1 |
| MC14 | 141 2 8519 61100 | Spring, Slide | 1 |
| MC15 | 141 2 7149 06101 | Brake Arm | 1 |
| MC16 | 141 2 4459 25200 | Brake Cover | 2 |
| MC17 | 141 0 7319 25603 | Slide Base Assy | 1 |
| MC18 | 141 2 8219 32000 | Guide Tape | 1 |
| MC19 | 141 2 3529 36000 | Spacer, Head | 1 |
| MC20 | 141 2 8529 10700 | Spring, Erase Head Arm | 1 |
| MC21 | 141 2 7439 30600 | Erase Head Arm | 1 |
| MC22 | 4 2429 72220 | Erase Head | 1 |
| MC23 | 141 2 4219 28300 | Screw w/Washer | 1 |
| MC24 | 141 2 8519 47400 | Spring, Head | 1 |
| MC25 | 4 2429 72210 | R/P Head | 1 |
| MC26 | 141 2 4729 01900 | Lug | 1 |
| MC27 | 141 2 3529 18101 | Spacer, Head | 1 |
| MC28 | 141 2 8529 11100 | Spring, Slide Base | 1 |
| MC29 | 141 0 5459 01900 | Pinch Roller Arm Assy | 1 |
| MC30 | 141 2 8529 11200 | Spring, Pinch Roller | 1 |
| MC31 | 141 2 8539 46800 | Spring, Cassette | 1 |
| MC32 | 141 0 7419 35903 | Completed Pause Rod | 1 |
| MC33 | 141 2 4219 13201 | Screw w/Washer | 1 |
| MC34 | 141 2 8549 16400 | Spring, Pause Rod | 1 |
| MC35 | 141 2 7419 84200 | Pause Lock Lever | 1 |
| MC36 | 141 2 8529 10600 | Spring, Pause Latch | 1 |
| MC37 | 141 2 4539 29600 | Washer | 1 |
| MC38 | 4 5279 71182 | Motor | 1 |
| MC39 | 141 2 4459 26800 | Cushion, Motor | 2 |
| MC40 | 141 2 4219 23300 | Screw | 2 |
| MC41 | 141 2 8529 11000 | Spring, Play Rod | 1 |
| MC42 | 141 2 4419 18200 | Cushion | 1 |
| MC43 | 141 2 7539 23900 | Spacer, PCB | 1 |
| MC44 | 141 2 5519 46400 | Take-up Idler | 1 |
| MC45 | 141 2 4539 15800 | Washer | 1 |
| MC46 | 141 0 7419 35803 | Completed Rewind Rod | 1 |
| MC47 | 141 0 7419 35603 | Completed F.FWD. Rod | 1 |
| MC48 | 141 2 3169 19700 | Bracket Plate | 1 |
| MC49 | 141 2 8519 33000 | Spring, Index Lock Lever | 1 |
| MC50 | 141 2 8549 16500 | Spring, Stop/Eject Rod | 1 |
| MC51 | 141 2 8549 19800 | Spring, F.FWD Rewind Rod | 2 |
| MC52 | 141 2 4539 21800 | Washer | 1 |
| MC53 | 141 2 5519 46000 | Capstan Gear | 1 |
| MC54 | 141 2 8559 03300 | Spring, Flywheel | 1 |
| MC55 | 141 0 5219 09000 | Flywheel Assy | 1 |
| MC56 | 141 2 5649 20300 | Capstan Belt | 1 |
| MC57 | 141 0 3129 01501 | Reel Plate Assy | 1 |
| MC58 | 141 2 8559 04600 | Spring | 1 |
| MC59 | 141 2 4539 02100 | Washer | 1 |
| MC60 | 141 2 7419 81600 | Shut-off Lever | 1 |
| MC61 | 141 2 8529 13000 | Spring, ASD Cancel | 1 |
| MC62 | 141 0 5319 07000 | Take-up Reel Assy | 1 |
| MC63 | 141 2 4539 28900 | Spindle Washer | 4 |

| Ref. No. | Part No. | Description | Q'ty |
|----------|------------------|---------------------------|------|
| MC64 | 141 2 8559 04300 | Spring, Supply | 1 |
| MC65 | 141 0 5319 07100 | Reel Supply Assy | 1 |
| MC66 | 141 0 7439 11200 | Rewind Arm Assy | 1 |
| MC67 | 141 2 5519 46100 | Rewind Gear | 1 |
| MC68 | 141 2 7439 30400 | Selector Link | 1 |
| MC69 | 141 2 7439 30500 | Fast Arm | 1 |
| MC70 | 141 2 8549 18400 | Spring, Fast Arm | 1 |
| MC71 | 141 2 7419 81700 | F.FWD. Lever | 1 |
| MC72 | 141 2 8549 15200 | Spring, F.FWD. Rewind Arm | 1 |
| MC73 | 141 2 4539 09300 | Washer | 1 |
| MC74 | 141 2 5519 46200 | Fast Gear | 1 |
| MC75 | 141 2 4539 30300 | Washer | 1 |
| MC76 | 141 0 7419 35703 | Stop Rod Assy | 1 |
| MC77 | 141 2 8549 16600 | Spring, Eject Plate | 1 |
| MC78 | 141 2 7319 54100 | Eject Plate | 1 |
| MC79 | 141 2 7319 54000 | Lock Plate | 1 |
| MC80 | 141 2 7419 81900 | Cue Review Lever | 1 |
| MC81 | 141 2 8429 06300 | Record Plate | 1 |
| MC82 | 141 2 8519 84300 | Spring, Flywheel Support | 1 |
| MC83 | 141 2 8549 20800 | Spring, Record Plate | 1 |
| MC84 | 141 2 4539 06900 | Washer | 1 |
| MC85 | 141 2 7319 53700 | Take-up Arm | 1 |
| MC86 | 141 2 8549 15300 | Spring, Take-up Arm | 1 |
| MZ1 | 101 3 1302 00511 | Screw, Pan Hd. | 1 |
| MZ2 | 101 3 2502 00711 | Screw, Cylinder Hd. | 1 |
| MZ3 | 110 3 1102 00023 | Sm. Round Washer | 1 |
| MZ4 | 112 3 1302 00082 | E Ring | 2 |
| MZ5 | 112 3 1302 50082 | E Ring | 1 |
| MZ6 | 127 3 1317 02013 | Pl Screw-1, Pan Hd. | 1 |
| MZ7 | 135 3 1302 01211 | Screw, Pan Hd. C PW | 1 |
| MZ8 | 143 3 1702 00618 | Screw, Bind Hd. Tapping-B | 4 |
| MZ9 | 143 3 1202 01018 | Screw, Flat Hd. Tapping-B | 1 |

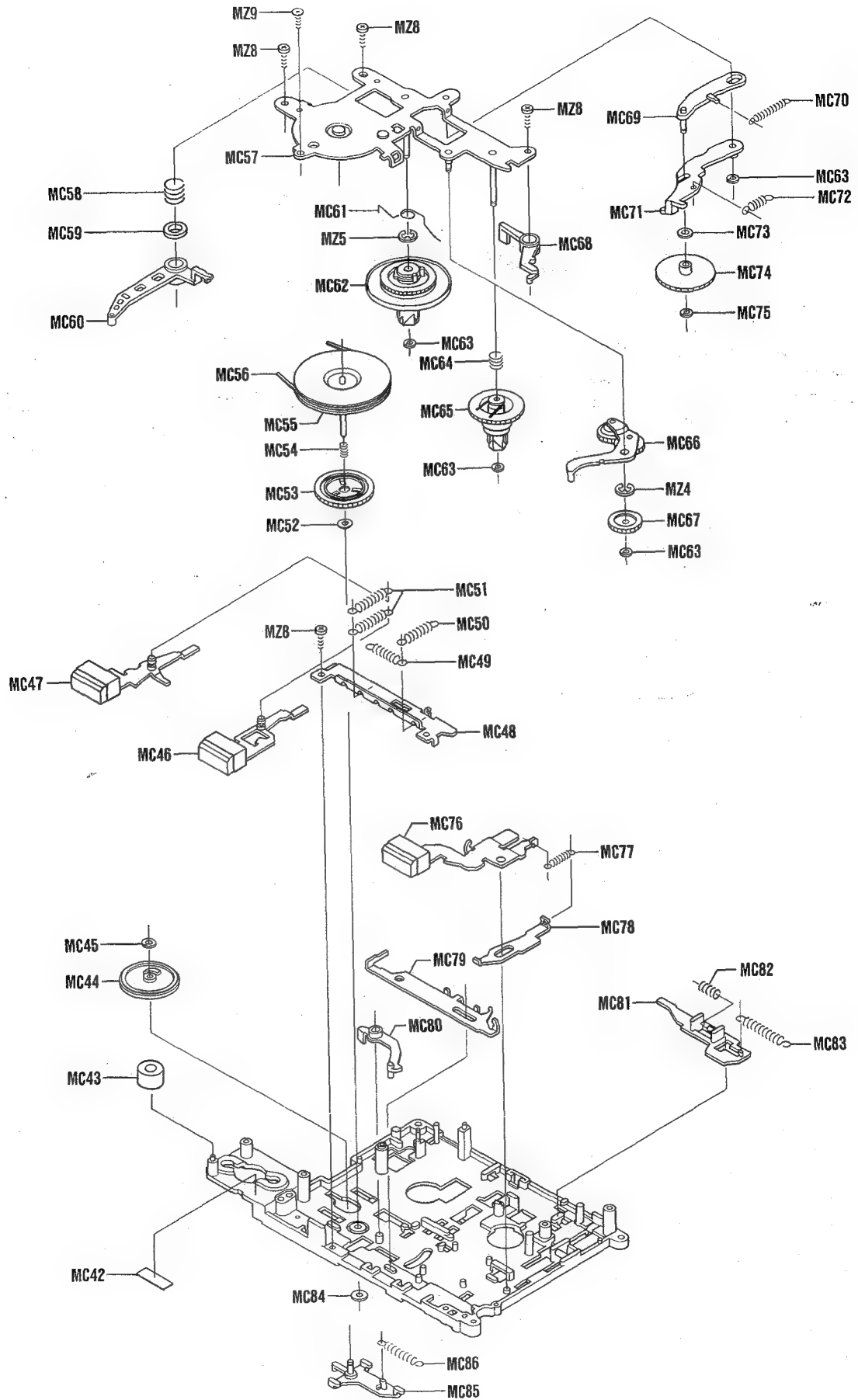
NOTES:

- Parts order must contain Model Number, Part Number and Description.
- Ordering quantity of screws and resistors must be multiple of 10 pcs.

MECHANISM EXPLODED VIEW



MECHANISM EXPLODED VIEW (Continued)



P.C.BOARD PARTS LIST

| Ref. No. | Part No. | Description | Q'ty | Ref. No. | Part No. | Description | Q'ty |
|------------------------------|------------------|----------------------------|------|----------|------------------|----------------|------------------------|
| AMP/TUNER P.C.B. ASSY | | | | D201 | 202 5 3160 00110 | Diode, GMA-01 | 1 |
| PCB1 | 4 1329 78219 | AMP/Tuner P.C.B. Assy | 1 | D202 | 202 5 3160 00110 | Diode, GMA-01 | 1 |
| | 4 2369 70742 | RT Pin | 4 | D303 | 202 5 3160 00110 | Diode, GMA-01 | 1 |
| 141 | 2 3229 39700 | Shield Plate | 1 | D305 | 4 2029 71320 | Diode, MA151WK | 1 |
| 141 | 2 3229 39800 | Shield Plate | 1 | D306 | 202 5 3160 00110 | Diode, GMA-01 | 1 |
| 141 | 2 4359 30700 | Insulator | 1 | D307 | 202 5 3160 00110 | Diode, GMA-01 | 1 |
| 141 | 2 4359 31900 | Spacer Plate | 1 | D308 | 202 5 3160 00110 | Diode, GMA-01 | 1 |
| CF1 | 4 2539 70881 | Ceramic Filter | 1 | C1 | CG8 0 A500 CD00C | Ceramic | 8pF 50V ±0.2pF 1 |
| CF2 | 4 2539 71191 | Ceramic Filter | 1 | C2 | CG1 0 3500 KH00B | Chip | 0.01μF 50V ±10% 1 |
| PVC1 | 4 2249 70741 | Variable Condenser | 1 | C3 | CG1 8 0500 JD00C | Ceramic | 18pF 50V ±5% 1 |
| J1 | 4 2359 75500 | 1P Jack (Stereo Mike) | 1 | C4 | CG1 0 3500 KH00B | Chip | 0.01μF 50V ±10% 1 |
| J2 | 4 2359 75500 | 1P Jack (Headphones) | 1 | C5 | CC2 0 0500 JCH0C | Ceramic | 20pF 50V ±5% 1 |
| J3 | 4 2359 72954 | Ext. Power Jack | 1 | C6 | CC5 0 A500 CD00C | Ceramic | 5pF 50V ±0.2pF 1 |
| S2 | 4 2319 75141 | Slide Switch (Record/Play) | 1 | C7 | CC1 5 0500 JD00C | Ceramic | 15pF 50V ±5% 1 |
| S3 | 4 2319 75260 | Slide Switch (Function) | 1 | C8 | CC1 0 3500 ZG00C | Ceramic | 0.01μF 50V +80,-20% 1 |
| S4 | 4 2319 75270 | Slide Switch (Tape Select) | 1 | C9 | CG1 0 3500 KH00B | Chip | 0.01μF 50V ±10% 1 |
| S6 | 4 2319 73990 | Leaf Switch (Power) | 1 | C10 | CG1 0 2500 KH00B | Chip | 0.001μF 50V ±10% 1 |
| S7 | 4 2319 73991 | Leaf Switch (Tape) | 1 | C11 | CG1 0 3500 KH00B | Chip | 0.01μF 50V ±10% 1 |
| T1 | 4 2569 71331 | FM DET, 10.7 | 1 | C12 | CG4 7 3250 MH00A | Chip | 0.047μF 25V ±20% 1 |
| T2 | 4 2569 71450 | IFT, AM | 1 | C13 | CD1 0 763A 0002V | Electrolytic | 100μF 6.3V 1 |
| T3 | 4 2569 71321 | FM IFT, 10.7 | 1 | C14 | CD4 7 5250 0002V | Electrolytic | 4.7μF 25V 1 |
| T4 | 4 2589 71620 | OSC Transformer, MW | 1 | C15 | 4 2239 70791 | Capacitor | 10μF 16V 1 |
| T301 | 4 2589 72040 | OSC Transformer | 1 | C16 | CG4 7 3250 MH00A | Chip | 0.047μF 25V ±20% 1 |
| L1 | 4 2599 70740 | RF Coil | 1 | C17 | CG4 7 3250 MH00A | Chip | 0.047μF 25V ±20% 1 |
| L2 | 4 2589 72021 | FM OSC Coil | 1 | C18 | CG3 3 3250 MH00A | Chip | 0.033μF 25V ±20% 1 |
| L3 | 4 2539 71180 | Trap 19kHz | 1 | C19 | CD4 7 663A 0002V | Electrolytic | 47μF 6.3V 1 |
| L4 | 4 2539 71180 | Trap 19kHz | 1 | C20 | CD1 0 6160 0002V | Electrolytic | 10μF 16V 1 |
| L6 | 4 2539 71171 | Band Pass Filter | 1 | C21 | CG3 3 3250 MH00A | Chip | 0.033μF 25V ±20% 1 |
| L101 | 4 2539 71001 | Choke Coil (8.2μH) | 1 | C22 | CD2 2 663A 0002V | Electrolytic | 22μF 6.3V 1 |
| L102 | 4 2539 70991 | Choke Coil (2.2μH) | 1 | C23 | CD4 7 5250 0002V | Electrolytic | 4.7μF 25V 1 |
| L201 | 4 2539 71001 | Choke Coil (8.2μH) | 1 | C24 | CD2 2 663A 0002V | Electrolytic | 22μF 6.3V 1 |
| L202 | 4 2539 70991 | Choke Coil (2.2μH) | 1 | C25 | CG3 3 3250 MH00A | Chip | 0.033μF 25V ±20% 1 |
| L301 | 4 2539 70981 | Choke Coil (10μH) | 1 | C26 | CT1 0 463A M00AV | Tantalume | 0.1μF 6.3V ±20% 1 |
| L302 | 4 2539 70650 | Choke Coil (3.3μH) | 1 | C27 | CG6 8 2500 KH00B | Chip | 0.0068μF 50V ±10% 1 |
| L303 | 4 2539 70650 | Choke Coil (3.3μH) | 1 | C28 | CG2 7 2500 KH00B | Chip | 0.0027μF 50V ±10% 1 |
| L304 | 4 2539 70740 | Choke Coil (500μH) | 1 | C29 | CG3 3 3250 MH00A | Chip | 0.033μF 25V ±20% 1 |
| P1 | 4 2229 72995 | Potentiometer (B-5kΩ) | 1 | C30 | CT1 0 463A M00AV | Tantalume | 0.1μF 6.3V ±20% 1 |
| P301 | 4 2229 72996 | Potentiometer (B-10kΩ) | 1 | C31 | CG6 8 2500 KH00B | Chip | 0.0068μF 50V ±10% 1 |
| TH301 | 204 5 9000 00090 | Thermistor, SDT 09 | 1 | C32 | CG2 7 2500 KH00B | Chip | 0.0027μF 50V ±10% 1 |
| TH302 | 204 5 9000 01000 | Thermistor, SDT 100 | 1 | C33 | CD1 0 5500 0002V | Electrolytic | 1μF 50V 1 |
| IC1 | 4 2069 71510 | IC, AN7216 | 1 | C34 | CD1 0 5500 0002V | Electrolytic | 1μF 50V 1 |
| IC2 | 4 2069 71530 | IC, AN7223 | 1 | C35 | CT4 7 463A M00AV | Tantalume | 0.47μF 6.3V ±20% 1 |
| IC3 | 206 5 0483 36161 | IC, LA3361 | 1 | C36 | CP1 0 2101 J002V | Polypropylen | 0.001μF 100V ±5% 1 |
| IC301 | 4 2069 71710 | IC, M51544L | 1 | C37 | CG3 3 3250 MH00A | Chip | 0.033μF 25V ±20% 1 |
| IC302 | 206 5 1634 19010 | IC, LA4190 | 1 | C38 | CD1 0 763A 0001V | Electrolytic | 100μF 6.3V 1 |
| IC303 | 206 5 3285 52210 | IC, LA5522 | 1 | C39 | CG3 3 3250 MH00A | Chip | 0.033μF 25V ±20% 1 |
| Q1 | 4 2039 70710 | Transistor, 2SC2786 | 1 | C40 | CI4 7 3120 ZF00C | Boundary | 0.047μF 12V +80,-20% 1 |
| Q2 | 203 5 4392 99940 | Transistor, 2SC 2999 | 1 | C41 | 4 2239 70520 | Capacitor | 220μF 6.3V 1 |
| Q101 | 203 5 5260 69362 | Transistor, 2SC693 | 1 | C42 | CG2 2 3250 KH00B | Chip | 0.022μF 25V ±10% 1 |
| Q102 | 203 5 5210 53670 | Transistor, 2SC 536 | 1 | C43 | CG7 0 A500 CD00C | Ceramic | 7pF 50V ±0.2pF 1 |
| Q103 | 203 5 4451 04887 | Transistor, 2SD 1048 | 1 | C44 | CG1 0 3500 KH00B | Chip | 0.01μF 50V ±10% 1 |
| Q201 | 203 5 5260 69362 | Transistor, 2SC693 | 1 | C45 | CG2 2 2500 KH00A | Chip | 0.0022μF 50V ±10% 1 |
| Q202 | 203 5 5210 53670 | Transistor, 2SC 536 | 1 | C46 | CC5 0 A500 CD00C | Ceramic | 5pF 50V ±0.2pF 1 |
| Q203 | 203 5 4451 04887 | Transistor, 2SD 1048 | 1 | C101 | CT1 0 463A M00AV | Tantalume | 0.1μF 6.3V ±20% 1 |
| Q204 | 203 5 4451 04887 | Transistor, 2SD 1048 | 1 | C102 | CG2 2 3250 KH00B | Chip | 0.022μF 25V ±10% 1 |
| Q205 | 203 5 4401 17915 | Transistor, 2SA 1179 | 1 | C103 | CG1 0 2500 KH00A | Chip | 0.001μF 50V ±10% 1 |
| Q301 | 203 5 4830 60860 | Transistor, 2SA 608 | 1 | C104 | CD3 3 5250 0002V | Electrolytic | 3.3μF 25V 1 |
| Q302 | 203 5 4451 04887 | Transistor, 2SD 1048 | 1 | C105 | CG1 0 2500 KH00B | Chip | 0.001μF 50V ±10% 1 |
| Q303 | 203 5 5210 53670 | Transistor, 2SC 536 | 1 | C106 | CD4 7 4500 0002V | Electrolytic | 0.47μF 50V 1 |
| D1 | 205 5 9040 44210 | Diode, DS 442 | 1 | C107 | CD1 0 740A 0002V | Electrolytic | 100μF 4V 1 |
| D3 | 202 5 3160 00110 | Diode, GMA-01 | 1 | C108 | CD1 0 5500 0002V | Electrolytic | 1μF 50V 1 |
| D4 | 202 5 3160 00110 | Diode, GMA-01 | 1 | C109 | CG1 0 2500 KH00B | Chip | 0.001μF 50V ±10% 1 |
| D101 | 202 5 3160 00110 | Diode, GMA-01 | 1 | C110 | CC1 0 2500 KE00C | Ceramic | 0.001μF 50V ±10% 1 |
| | | | | C111 | CG4 7 3250 MH00A | Chip | 0.047μF 25V ±20% 1 |

P.C.BOARD PARTS LIST (Continued)

| Ref. No. | Part No. | Description | Q'ty |
|----------|------------------|--------------|---------------------|
| C112 | CG1 2 2500 KH00B | Chip | 0.0012μF 50V ±10% 1 |
| C113 | CG8 2 2500 KH00B | Chip | 0.0082μF 50V ±10% 1 |
| C114 | CD4 7 4500 0002V | Electrolytic | 0.47μF 50V 1 |
| C115 | CD1 0 5500 0002V | Electrolytic | 1μF 50V 1 |
| C117 | CD1 0 5500 0002V | Electrolytic | 1μF 50V 1 |
| C118 | CG1 5 2500 KH00B | Chip | 0.0015μF 50V ±10% 1 |
| C119 | CD4 7 640A 0002V | Electrolytic | 47μF 4V 1 |
| C121 | CD4 7 640A 0002V | Electrolytic | 47μF 4V 1 |
| C122 | 4 2239 70880 | Capacitor | 1μF 16V 1 |
| C123 | CD2 2 740A 0002V | Electrolytic | 220μF 4V 1 |
| C124 | CD1 0 5500 0002V | Electrolytic | 1μF 50V 1 |
| C125 | CT2 2 563A M00AV | Tantalume | 2.2μF 6.3V ±20% 1 |
| C126 | CG1 8 2500 KH00B | Chip | 0.0018μF 50V ±10% 1 |
| C127 | CP3 9 2101 J001V | Polypropylen | 0.0039μF 100V ±5% 1 |
| C128 | CG3 9 2500 KH00B | Chip | 0.0039μF 50V ±10% 1 |
| C129 | CD4 7 640A 0002V | Electrolytic | 47μF 4V 1 |
| C130 | CG2 2 3250 MH00A | Chip | 0.022μF 25V ±20% 1 |
| C131 | CG1 8 3500 KH00B | Chip | 0.018μF 50V ±10% 1 |
| C201 | CT1 0 463A M00AV | Tantalume | 0.1μF 6.3V ±20% 1 |
| C202 | CG2 2 3250 KH00B | Chip | 0.022μF 25V ±10% 1 |
| C203 | CG1 0 2500 KH00B | Chip | 0.001μF 50V ±10% 1 |
| C204 | CD3 3 5250 0002V | Electrolytic | 3.3μF 25V 1 |
| C205 | CC1 0 2500 KE00C | Ceramic | 0.001μF 50V ±10% 1 |
| C206 | CD4 7 4500 0002V | Electrolytic | 0.47μF 50V 1 |
| C207 | CD1 0 740A 0002V | Electrolytic | 100μF 4V 1 |
| C208 | CD1 0 5500 0002V | Electrolytic | 1μF 50V 1 |
| C209 | CG1 0 2500 KH00B | Chip | 0.001μF 50V ±10% 1 |
| C210 | CC1 0 2500 KE00C | Ceramic | 0.001μF 50V ±10% 1 |
| C211 | CG4 7 3250 MH00A | Chip | 0.047μF 25V ±20% 1 |
| C212 | CG1 2 2500 KH00B | Chip | 0.0012μF 50V ±10% 1 |
| C213 | CG8 2 2500 KH00B | Chip | 0.0082μF 50V ±10% 1 |
| C214 | CD4 7 4500 0002V | Electrolytic | 0.47μF 50V 1 |
| C215 | CD1 0 5500 0002V | Electrolytic | 1μF 50V 1 |
| C217 | CD1 0 5500 0002V | Electrolytic | 1μF 50V 1 |
| C218 | CG1 5 2500 KH00B | Chip | 0.0015μF 50V ±10% 1 |
| C219 | CD1 0 740A 0002V | Electrolytic | 100μF 4V 1 |
| C220 | CD1 0 6160 0002V | Electrolytic | 10μF 16V 1 |
| C221 | CD4 7 640A 0002V | Electrolytic | 47μF 4V 1 |
| C222 | 4 2239 70880 | Capacitor | 1μF 16V 1 |
| C223 | CD2 2 740A 0002V | Electrolytic | 220μF 4V 1 |
| C224 | CD1 0 5500 0002V | Electrolytic | 1μF 50V 1 |
| C225 | CT2 2 563A M00AV | Tantalume | 2.2μF 6.3V ±20% 1 |
| C226 | CG1 8 2500 KH00B | Chip | 0.0018μF 50V ±10% 1 |
| C227 | CP3 9 2101 J001V | Polypropylen | 0.0039μF 100V ±5% 1 |
| C228 | CG3 9 2500 KH00B | Chip | 0.0039μF 50V ±10% 1 |
| C231 | CG1 8 3500 KH00B | Chip | 0.018μF 50V ±10% 1 |
| C301 | CG1 0 2500 KH00B | Chip | 0.001μF 50V ±10% 1 |
| C302 | 4 2239 70520 | Capacitor | 220μF 6.3V 1 |
| C303 | CD1 0 7100 0001V | Electrolytic | 100μF 10V 1 |
| C304 | CD3 3 7100 0003V | Electrolytic | 330μF 10V 1 |
| C305 | CD3 3 7100 0003V | Electrolytic | 330μF 10V 1 |
| C306 | 4 2239 70840 | Capacitor | 220μF 16V 1 |
| C307 | 4 2239 70510 | Capacitor | 470μF 6.3V 1 |
| C308 | 4 2239 70860 | Capacitor | 470μF 6.3V 1 |
| C309 | CD4 7 663A 0002V | Electrolytic | 47μF 6.3V 1 |
| C310 | CG5 6 1500 JD00B | Chip | 560pF 50V ±5% 1 |
| C311 | CG8 2 1500 JD00B | Chip | 820pF 50V ±5% 1 |
| C312 | CG6 8 2500 KH00B | Chip | 0.0068μF 50V ±10% 1 |
| C313 | CG1 0 3500 KH00B | Chip | 0.01μF 50V ±10% 1 |
| C314 | CD1 0 6160 0002V | Electrolytic | 10μF 16V 1 |
| C315 | CD1 0 6160 0002V | Electrolytic | 10μF 16V 1 |
| C316 | CD1 0 6160 0002V | Electrolytic | 10μF 16V 1 |
| C317 | CD2 2 5500 0002V | Electrolytic | 2.2μF 50V 1 |
| C318 | CD4 7 5250 0002V | Electrolytic | 4.7μF 25V 1 |

| Ref. No. | Part No. | Description | Q'ty |
|----------|------------------|---------------|------------------------|
| C319 | 4 2239 70860 | Capacitor | 470μF 6.3V 1 |
| C320 | CD2 2 663A 0002V | Electrolytic | 22μF 6.3V 1 |
| C321 | CC3 3 2500 KE00C | Ceramic | 0.0033μF 50V ±10% 1 |
| C322 | CD4 7 5250 0002V | Electrolytic | 4.7μF 25V 1 |
| C323 | C14 7 3120 ZF00C | Boundary | 0.047μF 12V +80,-20% 1 |
| C324 | C14 7 3120 ZF00C | Boundary | 0.047μF 12V +80,-20% 1 |
| R1 | RG3 3 4121 JA000 | Chip | 330kΩ 1/8W ±5% 1 |
| R2 | RP3 3 1121 JV000 | Pretty Carbon | 330Ω 1/8W ±5% 1 |
| R4 | RP1 0 1121 JV000 | Pretty Carbon | 100Ω 1/8W ±5% 1 |
| R5 | RP1 0 1121 JV000 | Pretty Carbon | 100Ω 1/8W ±5% 1 |
| R6 | RP3 9 3121 JV000 | Pretty Carbon | 39kΩ 1/8W ±5% 1 |
| R7 | RG1 0 5121 JA000 | Chip | 1MΩ 1/8W ±5% 1 |
| R8 | RP3 3 1121 JV000 | Pretty Carbon | 330Ω 1/8W ±5% 1 |
| R9 | RP1 0 3121 JV000 | Pretty Carbon | 10kΩ 1/8W ±5% 1 |
| R11 | RG3 3 2121 JA000 | Chip | 3.3kΩ 1/8W ±5% 1 |
| R12 | RG2 7 2121 JA000 | Chip | 2.7kΩ 1/8W ±5% 1 |
| R13 | RG6 8 2121 JA000 | Chip | 6.8kΩ 1/8W ±5% 1 |
| R14 | RG2 7 2121 JA000 | Chip | 2.7kΩ 1/8W ±5% 1 |
| R15 | RG6 8 2121 JA000 | Chip | 6.8kΩ 1/8W ±5% 1 |
| R16 | RG3 6 1121 JA000 | Chip | 360Ω 1/8W ±5% 1 |
| R17 | RG1 0 2121 JA000 | Chip | 1kΩ 1/8W ±5% 1 |
| R18 | RG1 0 2121 JA000 | Chip | 1kΩ 1/8W ±5% 1 |
| R19 | RG9 1 2121 JA000 | Chip | 9.1kΩ 1/8W ±5% 1 |
| R20 | RG4 7 0121 JA000 | Chip | 47Ω 1/8W ±5% 1 |
| R21 | RG2 2 0121 JA000 | Chip | 22Ω 1/8W ±5% 1 |
| R22 | RP1 0 2121 JV000 | Pretty Carbon | 1kΩ 1/8W ±5% 1 |
| R101 | RP3 3 2121 JV000 | Pretty Carbon | 3.3kΩ 1/8W ±5% 1 |
| R102 | RG1 0 2121 JA000 | Chip | 1kΩ 1/8W ±5% 1 |
| R103 | RG3 9 2121 JA000 | Chip | 3.9kΩ 1/8W ±5% 1 |
| R104 | RP4 7 4121 JV000 | Pretty Carbon | 470kΩ 1/8W ±5% 1 |
| R105 | RP1 0 1121 JV000 | Pretty Carbon | 100Ω 1/8W ±5% 1 |
| R106 | RP3 9 2121 JV000 | Pretty Carbon | 3.9kΩ 1/8W ±5% 1 |
| R107 | RG1 0 1121 JA000 | Chip | 100Ω 1/8W ±5% 1 |
| R108 | RP4 7 3121 JV000 | Pretty Carbon | 47kΩ 1/8W ±5% 1 |
| R109 | RP5 6 2121 JV000 | Pretty Carbon | 5.6kΩ 1/8W ±5% 1 |
| R110 | RP5 6 2121 JV000 | Pretty Carbon | 5.6kΩ 1/8W ±5% 1 |
| R111 | RP3 9 2121 JV000 | Pretty Carbon | 3.9kΩ 1/8W ±5% 1 |
| R112 | RP3 3 2121 JV000 | Pretty Carbon | 3.3kΩ 1/8W ±5% 1 |
| R113 | RG1 5 3121 JA000 | Chip | 15kΩ 1/8W ±5% 1 |
| R114 | RP5 6 2121 JV000 | Pretty Carbon | 5.6kΩ 1/8W ±5% 1 |
| R115 | RG1 5 2121 JA000 | Chip | 1.5kΩ 1/8W ±5% 1 |
| R116 | RP1 0 4121 JV000 | Pretty Carbon | 100kΩ 1/8W ±5% 1 |
| R117 | RP4 7 3121 JV000 | Pretty Carbon | 47kΩ 1/8W ±5% 1 |
| R118 | RP4 7 2121 JV000 | Pretty Carbon | 4.7kΩ 1/8W ±5% 1 |
| R119 | RG3 3 3121 JA000 | Chip | 33kΩ 1/8W ±5% 1 |
| R120 | RG3 9 2121 JA000 | Chip | 3.9kΩ 1/8W ±5% 1 |
| R121 | RG4 7 0121 JA000 | Chip | 47Ω 1/8W ±5% 1 |
| R122 | RG4 7 0121 JA000 | Chip | 47Ω 1/8W ±5% 1 |
| R123 | RG2 2 1121 JA000 | Chip | 220Ω 1/8W ±5% 1 |
| R126 | RP1 8 3121 JV000 | Pretty Carbon | 18kΩ 1/8W ±5% 1 |
| R127 | RP3 3 1121 JV000 | Pretty Carbon | 330Ω 1/8W ±5% 1 |
| R128 | RG8 2 3121 JA000 | Chip | 82kΩ 1/8W ±5% 1 |
| R201 | RP3 3 2121 JV000 | Pretty Carbon | 3.3kΩ 1/8W ±5% 1 |
| R202 | RG1 0 2121 JA000 | Chip | 1kΩ 1/8W ±5% 1 |
| R203 | RG3 9 2121 JA000 | Chip | 3.9kΩ 1/8W ±5% 1 |
| R204 | RG4 7 4121 JA000 | Chip | 470kΩ 1/8W ±5% 1 |
| R205 | RP1 0 1121 JV000 | Pretty Carbon | 100Ω 1/8W ±5% 1 |
| R206 | RP3 9 2121 JV000 | Pretty Carbon | 3.9kΩ 1/8W ±5% 1 |
| R207 | RP1 0 1121 JV000 | Pretty Carbon | 100Ω 1/8W ±5% 1 |
| R208 | RP4 7 3121 JV000 | Pretty Carbon | 47kΩ 1/8W ±5% 1 |
| R209 | RG5 6 2121 JA000 | Chip | 5.6kΩ 1/8W ±5% 1 |
| R210 | RG5 6 2121 JA000 | Chip | 5.6kΩ 1/8W ±5% 1 |
| R211 | RG3 9 2121 JA000 | Chip | 3.9kΩ 1/8W ±5% 1 |
| R212 | RP3 3 2121 JV000 | Pretty Carbon | 3.3kΩ 1/8W ±5% 1 |

| Ref. No. | Part No. | Description | Q'ty |
|----------------------------|------------------|--------------------------------|--------------------|
| R213 | RG1 5 3121 JA000 | Chip | 15kΩ 1/8W ±5% 1 |
| R214 | RP5 6 2121 JV000 | Pretty Carbon | 5.6kΩ 1/8W ±5% 1 |
| R215 | RG1 5 2121 JA000 | Chip | 1.5kΩ 1/8W ±5% 1 |
| R216 | RP1 0 4121 JV000 | Pretty Carbon | 100kΩ 1/8W ±5% 1 |
| R217 | RP4 7 3121 JV000 | Pretty Carbon | 47kΩ 1/8W ±5% 1 |
| R218 | RP4 7 2121 JV000 | Pretty Carbon | 4.7kΩ 1/8W ±5% 1 |
| R219 | RG3 3 3121 JA000 | Chip | 33kΩ 1/8W ±5% 1 |
| R220 | RG3 9 2121 JA000 | Chip | 3.9kΩ 1/8W ±5% 1 |
| R221 | RG4 7 0121 JA000 | Chip | 47Ω 1/8W ±5% 1 |
| R222 | RG4 7 0121 JA000 | Chip | 47Ω 1/8W ±5% 1 |
| R223 | RG2 2 1121 JA000 | Chip | 220Ω 1/8W ±5% 1 |
| R224 | RG8 2 2121 JA000 | Chip | 8.2kΩ 1/8W ±5% 1 |
| R225 | RG4 7 3121 JA000 | Chip | 47kΩ 1/8W ±5% 1 |
| R226 | RG1 8 3121 JA000 | Chip | 18kΩ 1/8W ±5% 1 |
| R227 | RP3 3 1121 JV000 | Pretty Carbon | 330Ω 1/8W ±5% 1 |
| R228 | RG8 2 3121 JA000 | Chip | 82kΩ 1/8W ±5% 1 |
| R301 | RG2 2 5121 JA000 | Chip | 2.2MΩ 1/8W ±5% 1 |
| R302 | RG1 0 0121 JA000 | Chip | 10Ω 1/8W ±5% 1 |
| R303 | RG6 8 3121 JA000 | Chip | 68kΩ 1/8W ±5% 1 |
| R304 | RG3 9 4121 JA000 | Chip | 390kΩ 1/8W ±5% 1 |
| R305 | RS6 8 1620 KT000 | Micro | 680Ω 1/16W ±10% 1 |
| R306 | RG4 7 0121 JA000 | Chip | 47Ω 1/8W ±5% 1 |
| R307 | RP1 0 2121 JV000 | Pretty Carbon | 1kΩ 1/8W ±5% 1 |
| R308 | RG4 7 1121 JA000 | Chip | 470Ω 1/8W ±5% 1 |
| R309 | RG6 8 0121 JA000 | Chip | 68Ω 1/8W ±5% 1 |
| R310 | RG3 3 3121 JA000 | Chip | 33kΩ 1/8W ±5% 1 |
| R311 | RG6 8 0121 JA000 | Chip | 68Ω 1/8W ±5% 1 |
| R312 | RG1 5 1121 JA000 | Chip | 150Ω 1/8W ±5% 1 |
| R313 | RG2 7 1121 JA000 | Chip | 270Ω 1/8W ±5% 1 |
| R314 | RP3 9 2121 JV000 | Pretty Carbon | 3.9kΩ 1/8W ±5% 1 |
| R315 | RG1 2 2121 JA000 | Chip | 1.2kΩ 1/8W ±5% 1 |
| R316 | RG4 7 1121 JA000 | Chip | 470Ω 1/8W ±5% 1 |
| R317 | RP3 3 1121 JV000 | Pretty Carbon | 330Ω 1/8W ±5% 1 |
| R318 | RP3 9 4121 JV000 | Pretty Carbon | 390kΩ 1/8W ±5% 1 |
| R319 | RG1 0 2121 JA000 | Chip | 1kΩ 1/8W ±5% 1 |
| R320 | RP4 7 2121 JT000 | Pretty Carbon | 4.7kΩ 1/8W ±5% 1 |
| R321 | RP1 3 3121 JZ000 | Pretty Carbon | 13kΩ 1/8W ±5% 1 |
| R322 | RP1 2 3121 JT000 | Pretty Carbon | 12kΩ 1/8W ±5% 1 |
| R323 | RP2 7 3121 JT000 | Pretty Carbon | 27kΩ 1/8W ±5% 1 |
| R324 | RP8 2 1121 JT000 | Pretty Carbon | 820Ω 1/8W ±5% 1 |
| R325 | RP4 7 2121 JT000 | Pretty Carbon | 4.7kΩ 1/8W ±5% 1 |
| R326 | 4 2219 70220 | Resistor 680 | 680Ω 1/4W ±5% 1 |
| R327 | RG1 0 2121 JA000 | Chip | 1kΩ 1/8W ±5% 1 |
| R328 | RG1 0 0121 JA000 | Chip | 10Ω 1/8W ±5% 1 |
| R329 | RP1 8 1121 JT000 | Pretty Carbon | 180Ω 1/8W ±5% 1 |
| VOLUME CONTROL P.C.B. ASSY | | | |
| PCB2 | 4 2229 73404 | Volume Control P.C.B. Assy | 1 |
| | 4 2269 37660 | PCB, Volume Control | 1 |
| S1 | 4 2319 75650 | Slide Switch (Band Select) | 1 |
| VR1 | 4 2229 73403 | Volume Control (C-20kΩ) | 1 |
| VR2 | 4 2229 73691 | Volume Control (C-20kΩ) | 1 |
| D2 | 202 5 3160 00110 | Diode, GMA-01 | 1 |
| D5 | 202 5 3160 00110 | Diode, GMA-01 | 1 |
| C116 | CG2 7 3250 KH00A | Chip | 0.027μF 25V ±10% 1 |
| C216 | CG2 7 3250 KH00A | Chip | 0.027μF 25V ±10% 1 |
| LED INDICATOR P.C.B. ASSY | | | |
| PCB3 | 4 2029 70533 | LED Indicator P.C.B. Assy | 1 |
| | 4 2269 37670 | PCB, LED | 1 |
| D301 | 4 2029 70530 | LED, SLP-114B (FM Stereo) | 1 |
| D302 | 4 2029 70530 | LED, SLP-114B (Record/Battery) | 1 |

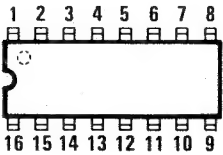
| Ref. No. | Part No. | Description | Q'ty |
|--------------------|--------------|---------------------------------------|------|
| SWITCH P.C.B. ASSY | | | |
| PCB4 | 4 2319 75651 | Switch P.C.B. Assy | 1 |
| | 4 2269 37680 | PCB, Switch | 1 |
| S5 | 4 2319 75650 | Slide Switch (Tape Speed/Beat Cancel) | 1 |

NOTES:
1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

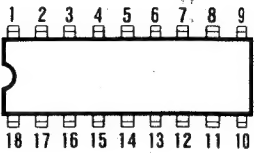
IC & TRANSISTOR LEAD IDENTIFICATION

| TRANSISTOR | FRONT VIEW | BOTTOM VIEW |
|--|------------|-------------|
| 2SA608 2SC536 2SC693 2SC2786 2SC2999 | | |
| 2SA1179 2SD1048 | | |
| TERMINAL NAME | | |
| B → BASE C → COLLECTOR E → EMITTER | | |

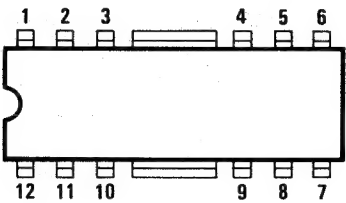
LA3361 BOTTOM VIEW



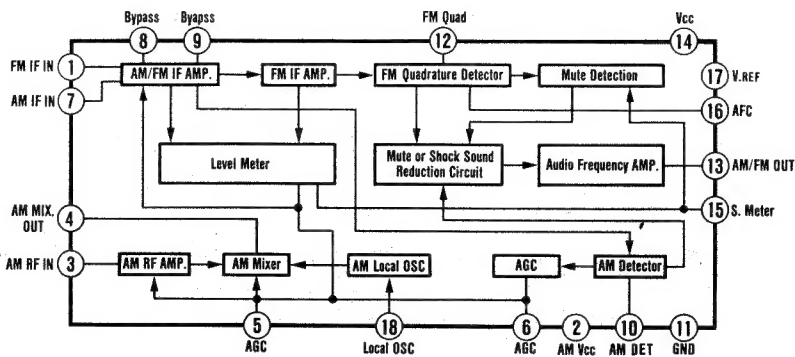
AN7223 BOTTOM VIEW



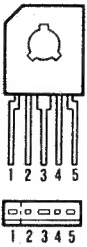
LA4190 BOTTOM VIEW



AN7223 BLOCK DIAGRAM

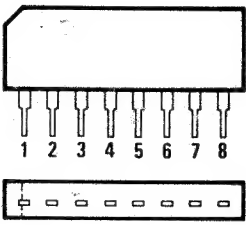


LA5522 FRONT VIEW



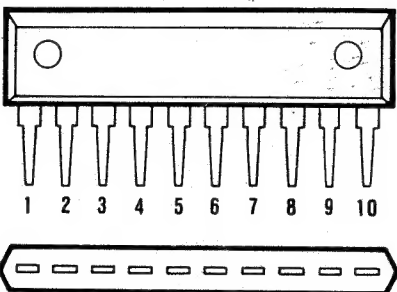
BOTTOM VIEW

AN7216 FRONT VIEW



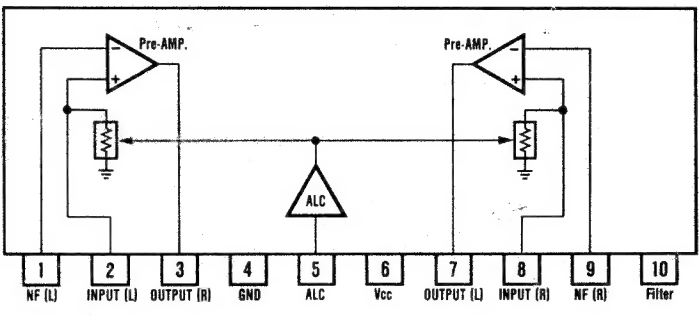
BOTTOM VIEW

M51544L FRONT VIEW

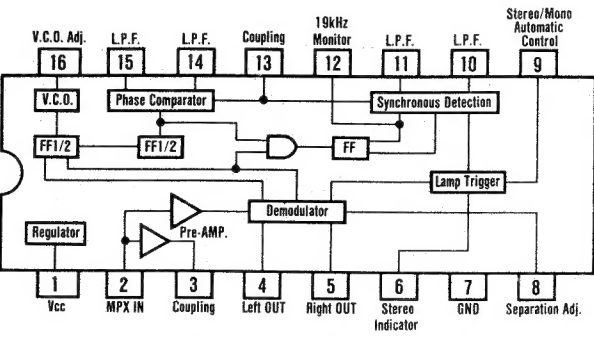


BOTTOM VIEW

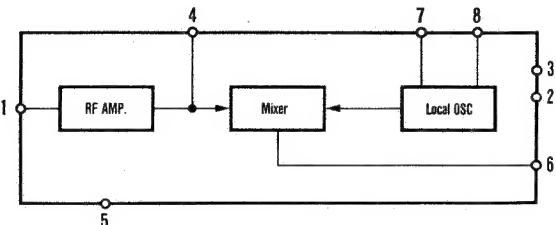
M51544L BLOCK DIAGRAM



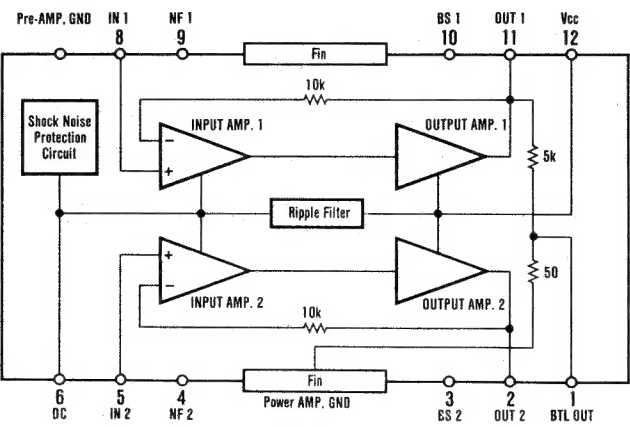
LA3361 BLOCK DIAGRAM



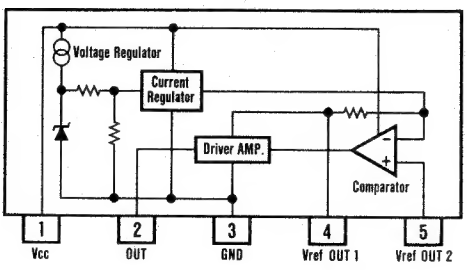
AN7216 BLOCK DIAGRAM



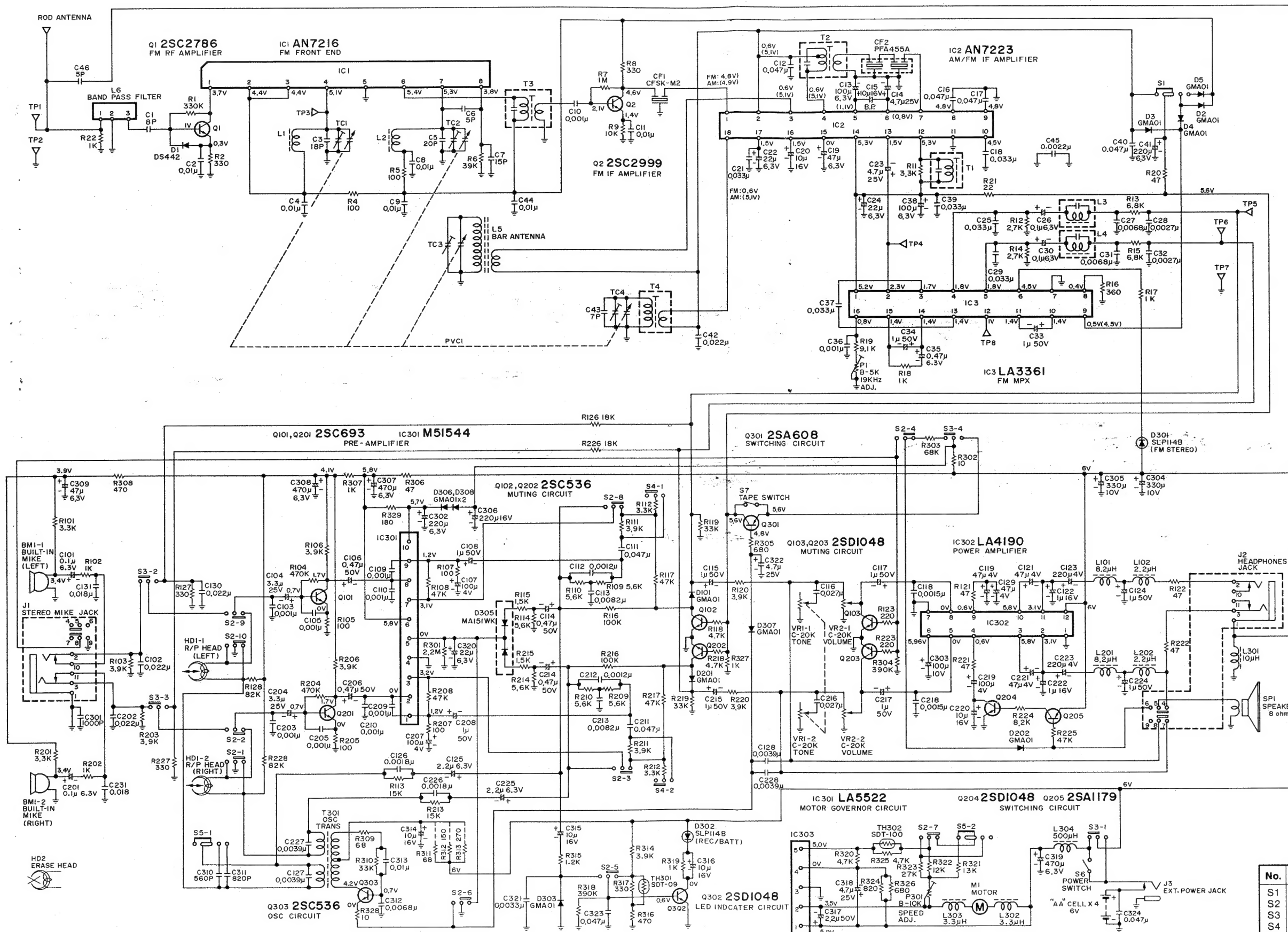
LA4190 BLOCK DIAGRAM



LA5522 BLOCK DIAGRAM

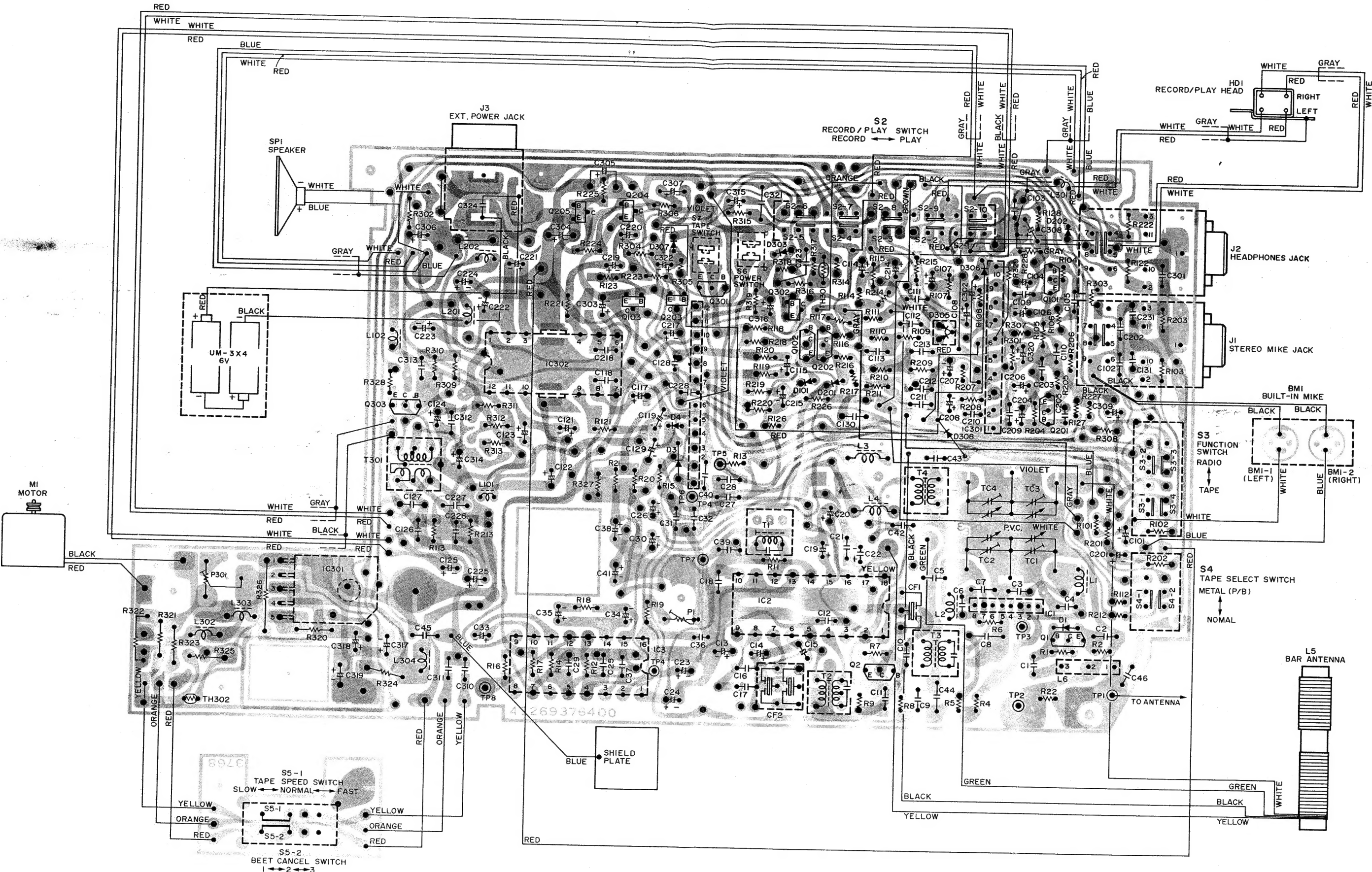


SCHEMATIC DIAGRAM



| No. | Name | Position |
|-----|--------------------|----------|
| S1 | Band Select Switch | AM |
| S2 | Record/Play Switch | PLAY |
| S3 | Function Switch | TAPE |
| S4 | Tape Select Switch | NORMAL |
| S5 | Beat Cancel Switch | 1 |
| S6 | Power Switch | OFF |
| S7 | Tape Switch | OFF |

AMPLIFIER/RADIO TUNER P.C.BOARD



VOLUME LED P.C.BOARD

